

PLEISTOCENE BIRDS
OF THE PALEARCTIC
A CATALOGUE

TOMMY TYRBERG

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PLEISTOCENE BIRDS
OF THE PALEARCTIC:
A CATALOGUE

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PLEISTOCENE BIRDS OF THE PALEARCTIC: A CATALOGUE

TOMMY TYRBERG



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INTRODUCTION

I grow giddy when I stand on this Hill and look down through the Ages which have rolled past like the waves in the Sound, and have left these nearly effaced traces of the Ancient World, which can still whisper when everything else has fallen silent.

Carl von Linnæus: *Skånska resa*, 1751

This work had its origin in a long-lasting quest to understand the origin and evolution of the Palearctic avifauna. It soon became apparent to me that the subject suffered from a plethora of papers long on speculation but short on hard data. In particular I was struck by the fact that while many authors have fashioned quite complex hypotheses about avian speciation, which postulate repeated changes of range and episodes of isolation during the Pleistocene in response to changing climates and palaeogeography, very few ever seem to have tried to validate their theories by reference to the fossil record. This might be because of the widespread misapprehension that the avian fossil record is both poor and uninformative. However, avian fossils are actually rather common. Indeed, as noted by Olson (1985), the frequently reiterated statements about their rarity may mostly be due to the wish of authors of textbooks to avoid having to write about an unfamiliar subject.

I therefore started collecting data on Pleistocene Palearctic avifaunas. Over a decade an originally quite modest collection of reprints and xeroxes grew to fill approximately three meters of bookshelves and several megabytes of hard-disk space on my PC. The data were originally collected for my own use, but I ultimately realized that I would never have the time and opportunity to analyze the huge amount of information properly and that it would be more sensible to organize it in an accessible form and publish it for the benefit of other workers with an interest in the history of the Palearctic avifauna.

This catalogue is based on an extensive search of the literature, but I am only too aware that it is not complete. Indeed, I doubt whether an entirely exhaustive search is humanly possible, given that the data are dispersed in a large number of frequently obscure and sometimes virtually unobtainable books and periodicals. In many cases I have, therefore, had to rely on secondary sources rather than the original references when the latter have proven impossible to obtain.

The only previous comprehensive reviews in existence are those of Lambrecht (1933) and Brodkorb (1963–78) but both are actually rather incomplete and the coverage is uneven, both geographically and linguistically. Lambrecht has good coverage of central Europe and the sites published in German while the

coverage is uneven for French locations and quite deficient for English sources. Not very surprisingly, more or less the opposite is true of Brodkorb's catalogue.

Wolf's catalogue (1938–41) was meant to be comprehensive for cave faunas, but the publication was unfortunately interrupted by World War II after three volumes had appeared. The site-by-site list had reached Spain (countries listed in alphabetical order), while publication of the systematic list had hardly begun.

Reasonably recent regional surveys of Pleistocene avifaunas exist for Spain (Vilalta 1964; Hernandez Carrasquilla 1993, 1994), Switzerland (Tschumi 1949), Poland (Bochenski 1993a), the Pannonian basin (Jánossy 1976–81, 1986), Romania (Jurcsak & Kessler 1973, 1986), Ukraine (Voynstvenskii 1967), ex-Yugoslavia (Malez 1973), the ex-Soviet Union (Burchak-Abramovich 1975) and China and Japan (Rich et al. 1986). There are also a few surveys which cover smaller areas such as Pyrenean France (Clot & Mourer-Chauviré 1986), south-eastern and southwestern England (Harrison 1985, 1987) and northeastern Italy (Bon et al. 1991). Even though these surveys have been made by workers who are thoroughly familiar with the fossil record and the literature concerning their respective areas, several of them are in fact incomplete, showing how difficult it is to achieve a really comprehensive coverage of all known sites.

I am aware that other researchers will certainly know of localities and references that I have overlooked. I hope that they will draw my attention to this information so I may update this catalogue. I would also appreciate receiving notice of new papers concerning the Pleistocene Palearctic avifauna, whether they give additional data for localities included in this catalogue, or are new localities.

CHRONOLOGY

The first problem when compiling data on Pleistocene birds is to decide just what the Pleistocene is. This seemingly simple problem is actually one of the more vexing problems of Quaternary geology.

When fixing the end of the Pleistocene I have decided to follow the convention normally used by Scandinavian Quaternary geologists who treat the Pleistocene as ending exactly 10,000 C14–years before present. This is equivalent to ca. 11,000 calendar years ago, and may actually be a century or two after the climatological end of the Dryas III stadial, but this is of minor significance and the convention has the virtue of simplicity.

The beginning of the Pleistocene has been fixed by ICS with reference to a stratotype in Vrica, Calabria, Italy (e. g., Harland et al. 1989). According to this definition the Pleistocene began ca. 1.64 MA BP, slightly after the end of the Olduvai geomagnetic event. This is a rather later date than has been preferred by many geologists, particularly in the Netherlands and Scandinavia (e. g., Donner 1995; Nilsson 1983) who place the beginning of the Pleistocene at the base of the Praetigian, the first major cold interval in NW Europe ca. 2.3 MA BP. This is certainly logical from a climatic point of view, but would mean including Mammal Zone MN 18 and most of MN 17 in the Pleistocene.

For the internal subdivision of the Pleistocene I have chosen to use the biozonation scheme of Guérin (e.g., 1982) which is already rather widely used by pa-

leontologists in Europe. This is an extension into the Pleistocene of the widely accepted Neogene biozonation system of Mein (e. g., 1990). The main difference between these two schemes is that Guérin has subdivided MN 17, the last Pliocene biozone, into two, viz., MN 17 and MN 18.

Biostratigraphically the European Pleistocene is often held to begin with Guérin's Land Mammal zone MNQ 19. However, it seems likely that the internationally agreed Plio/Pleistocene border actually falls somewhere in the upper part of MN 18 (Chart 1, Chapter 5). Because of this and the inevitable imprecision of biostratigraphic dating, I have decided to include all faunas dated to MN 18 in this catalogue. Older Pliocene records have been used when defining the stratigraphic ranges of taxa, but they are not listed either in the site list or the systematic list.

The Tertiary avifaunas of Europe has recently been compiled by Mlíkovský (1996) to whose work the reader is referred for further details on pre-MN 18 faunas.

DATING

The scientific value of a fossil is to a very great extent dependent on how well dated it is. This is particularly true of material from the Pleistocene when climatic and geographic changes were both frequent, as well as rapid and drastic. I have, therefore, tried to include any scrap of information which may fix the dates of sites and individual layers within sites. Consequently, I have been very eclectic about dating information. Both absolute dates (Carbon 14 (^{14}C)), Thermoluminescence (TL), Uranium/Thorium (U/Th), Amino Acid Racemization (AAR) and Electron Spin Resonance (ESR) dates, as well as biostratigraphic, chronostratigraphic and archaeological information has been included. This has meant using a large number of terms, at least some of which are likely to be unfamiliar to most readers and I have therefore included a glossary (Chapter 4).

It should be noted that all Carbon 14 dates given in this catalogue are uncalibrated. At the present time reliable calibration data are only available for the very end of the Pleistocene where the ^{14}C -dates are known to be ca. 1,000 years too young, but it seems likely that all Late Pleistocene ^{14}C -dates are on the order of 10% too low. This should be borne in mind when comparing ^{14}C -dates with dates obtained by other methods.

Unfortunately Quaternary Geology in Europe suffers from a chaotic nomenclature. In particular the terms of the "classical" alpine glacial sequence of Penck and Brückner have been misused by being indiscriminately applied in areas far from the Alps; they are now virtually meaningless. In more recent times a contrary reaction has set in and the tendency is to allocate local names to climatic phases, even when correlation with type sites in other areas seems secure. This has resulted in a plethora of different terms for the same climatic/chronological phase.

CORRELATION CHARTS

To assist in the correlation and interpretation of the fossil avifaunas three correlation charts are included (Chapter 5). Chart 1 (p. 610) is an effort to correlate the major Early and Middle Pleistocene Palearctic avifaunas. Most Pliocene

avifaunas of MN 15 age or younger are also included. This chart is based on a number of sources, particularly Jánossy (1986), Mourer-Chauviré (1993) and Sanchez-Marco (in litt.), but I have changed the dates of many sites according to my own judgment.

One thing that has struck me during the compilation of this chart is that the regional unevenness of the Early and Middle Pleistocene record is even greater than I had previously appreciated. For example, France with its incomparably rich Pleistocene fossil record seems to lack completely sites of "Cromerian" age (ca. IS 13–21) although these are common in England and central Europe. In England, on the other hand, there is apparently an approximately 1 million year long hiatus between the latest Pliocene and the earliest Pleistocene (Cromerian) sites. Hungary and Poland, both with fair to good Early Pleistocene and Early Middle Pleistocene records, have virtually no locations from the Late Middle Pleistocene, an interval from which there is a considerable number of sites in many other areas (e. g., France and Italy). Since this unevenness is most striking in the best studied areas (France, Pannonian Basin) it is unlikely to be an artifact. The reason is more likely regional differences in tectonic and sedimentary regimes which have affected the deposition and erosion of fossiliferous sediments, though the details are obscure.

Chart 2 (p. 610) gives an overview of the subdivisions of the last (Würmian/Weichselian/Devensian) glacial cycle 127,000–10,000 BP. On this chart space limitations preclude including even the more important sites. However, with the dating information given in the site list, at least the more well-dated places can easily be placed within the chronological framework.

Chart 3 (p. 610) shows the Late Glacial (ca. 13,000–10,000 BP) in more detail. This interval is both much better known and has a very large number of avifaunas, which makes it possible to study the changes of the avifauna in much greater detail than during earlier intervals.

SOURCES OF BIAS IN THE FOSSIL RECORD

There are a number of factors that bias the fossil record, both in time and space, which need to be understood if the potential and the limitations of the record are to be properly appreciated. A general phenomenon, for which there is to my knowledge, no fully satisfactory explanation, is the remarkable rarity of truly interglacial (and especially Eemian) cave deposits. This is usually considered to be due to erosion and/or weathering of deposits under the warm and wet conditions prevailing during interglacials. However very many caves contain considerable deposits from the present interglacial which are apparently neither being eroded nor weathered to any appreciable degree. Either cave deposits were preferentially destroyed near the end of interglacials (which has not yet been reached during the present, Flandrian, interglacial), or the present interglacial is somehow exceptional when it comes to depositional regimes in caves. This phenomenon only seems to apply to warm intervals of full interglacial rank, while lesser warm intervals, even the quite warm interstadials IS 5a and 5c, are well-represented in the fossil record. Most of the few truly interglacial avifaunas that do exist are from open sites such as lake deposits and travertines.

Deposits from the coldest parts of glacial periods apparently also are scarce, except in the Mediterranean Basin and northern Spain. This is presumably because organic sedimentation in caves virtually stops during very cold intervals. Such intervals are mostly represented, if at all, by palaeontologically sterile thermoclastic scree. Deposition of cultural layers in caves also ceased during the coldest intervals when large parts of Europe were apparently abandoned by hominids.

Most fossil sites are, therefore, from interstadials or moderately cold parts of glaciations. As pointed out by Gamble (1985), this is also the type of climate that has prevailed for the largest part of the Pleistocene, and should perhaps be regarded as the "normal" Pleistocene climate, with the Interglacials and the Pleniglacial Stadials being spectacular, but relatively brief, interruptions.

Another important source of bias is the extreme complexity and variability of depositional regimes in caves. Individual caves often went through repeated episodes of accumulation and erosion of deposits, sometimes interspersed by long periods when very little deposition or erosion seems to have taken place. To some extent these changes were due to regional changes in climate and hydrology which affected several sites simultaneously (cf., e. g., Laville 1980; Campy & Chaline 1993), but local conditions also seem to have been important. Often the depositional regime was very different even in adjacent parts of the same cave. In many well-investigated caves, deep, and seemingly continuously augmented, deposits have actually proven to have accumulated in a very episodic manner. A drastic example is the Grotta Romanelli site in Apulia (IT 40) where there are two layers with rich avifauna, "Terra Rossa" and "Terra Bruna", separated by a thin layer of stalagmite. The two main layers were apparently deposited during fairly short intervals (a few thousand years each) near the beginning and the end of the last glacial, while the nearly 100,000 years between is represented only by the thin stalagmite. Another well-documented example of this phenomenon is Baume de Gigny (FR 44) (Campy & Chaline 1993).

It should also be noted that even in caves with very deep deposits, only relatively short periods within the Pleistocene are normally represented. There are a few locations where much of the last glaciation and also at least parts of the penultimate glaciation are represented (e. g., Combe Grenal, Gigny, Vindija, Kulna), but these are quite rare and there is, to my knowledge, no even reasonably continuous cave sequence spanning three complete glacial cycles. Zhoukoudian Locality 1 in China admittedly spans much of the Middle Pleistocene, but it seems unclear how continuous deposition was at this site. Most stratified sites, therefore, give a series of "snapshots" of the avifauna, varying in length from perhaps a few decades to a few millennia.

A certain degree of mixing of even seemingly undisturbed deposits must also be allowed for when interpreting fossil faunas. A great variety of mechanisms may cause stratigraphic displacement of a bone. For example, trampling or digging by animals, gravitational slumping, weathering of deposits, mass movement, wind deflation, glacial bulldozing, frost action, earthquakes, running water and disturbance by man. Last, but definitely not least, carelessness or deficient techniques during excavation, recording and storage of the finds will introduce further errors in stratigraphic assignments.

Other important sources of bias occur in coastal regions and at places that are now hyperarid. Because sealevel during the Pleistocene was mostly lower than at present, owing to the large amount of water bound in icecaps, most Pleistocene coastal sites are now underwater and inaccessible. The few that do exist are either of interglacial age (e. g., Bacon Hole, Wales), from very steep Mediterranean coasts (e. g., Gibraltar), from areas where the istostatic rebound after deglaciation has kept pace with the Flandrian transgression (e. g., Norway) or, more rarely, where sites have been uplifted by recent tectonic activity (e. g., Archi in Calabria). At fossil locations in areas that are now hyperarid (e. g., Sahara) there are records of periods of moister climate. Such periods have been brief and far between, and mostly, but not exclusively, coeval with interglacials at higher latitudes. It should be remembered that for most of the time these hyperarid areas probably experienced climatic conditions more or less similar to those of today, but that these long intervals have normally left no palaeontological remains.

Fossil avifaunas are predominantly found in hilly or mountainous areas. The main reason for this is that most finds are from karst caves or fissure fillings which are typically found in areas of fairly pronounced relief. Karst caves do occur under flat limestone plains (e. g., in the Nullarbor desert of Australia), but to my knowledge no such site with avifauna is known from the Palearctic. The dependence on karst geology makes for a very uneven distribution of fossil locations. For example, in Hungary the vast majority of sites are concentrated in half a dozen relatively small areas of limestone hills, while there are very few records from the alluvial plains which make up most of the country.

Of course, sites are also very rare in the areas that were overrun by ice during the last glaciation. In these areas any sites older than the last glacial maximum have almost always been destroyed or covered by deep glacial deposits. Conditions are similar in the zone immediately south of the glaciation, e.g., the Polish and North German plains. These areas are largely covered by extensive sandy outwash deposits which have deeply buried any older sites. Bones are very rarely preserved in such well-drained acid soils and there are, therefore, very few sites even from the interval after the deglaciation of these areas.

The species of birds occurring in fossil faunas are also a far from random sampling of the avifauna. One question which is important in this context is whether avian remains have accumulated by human or natural agency. As a generalization, the latter is probably normally the case. In some cases this is obvious, e. g., at caves which are too small or inaccessible ever to have been used by humans, but even at places frequented by humans the avian remains are probably often of natural origin. Persuasive evidence for Palaeolithic bird hunting exists only in a few cases, particularly relating to galliforms (*Lagopus* and *Alectoris*) (e. g., Baales 1989,1992; Mourer-Chauviré 1979b,1983a; Reisch 1976), though other birds were probably taken on an opportunistic basis. Bird hunting of a more intense and eclectic kind may, however, have occurred in the denser and more sedentary transitional epipalaeolithic/neolithic populations of the latest Pleistocene in the Near East (Pichon 1984,1991). In general it is not easy to prove whether bird remains found at dwelling sites were actually hunted. In a few instances the composition of the bird remains however makes it clear that hunting was involved.

This applies, for example, to the frequent records of feet (only) of *Nyctea scandiaca* at French Magdalenian sites (Mourer-Chauviré 1979b) or to the remains of *Pyrhcorax pyrrhcorax* from the Magdalenian of Adaouste (FR 29) which were apparently killed for their feathers (Bouchud 1953b), perhaps used to fletch arrows. Most avian remains in this catalogue are however likely to have accumulated by non-human agencies. In cave and abri sites this would normally have been predators, perhaps most often owls but also raptors and small mammals. In these cases the composition of the avifaunal remains will of course reflect the choice of prey of the predator that accumulated the remains. Many remains are probably also from birds that used the caves and rockshelters for nesting and roosting, and died there from natural causes. This applies to species such as *Aquila chrysaetos*, *Falco tinnunculus*, *Columba livia*, *Bubo bubo*, *Corvus corax*, *Pyrhcorax pyrrhcorax* and *Pyrhcorax graculus*, all of which are quite common as fossils. On the other hand, pitfall traps, which are often very fruitful sources of mammalian fossils, are for obvious reasons of little significance for birds.

In addition to the bias originally present in the accumulated avian remains, further biases were introduced by the vagaries of preservation, incomplete recovery during excavation and incomplete identification of the recovered remains. All three factors tend toward overrepresentation of large, usually non-passerine, species and the elimination of small passerines. Indeed small passerines are completely absent in many faunas, although they form the overwhelming majority of individuals in all modern faunas and undoubtedly did so in the Pleistocene as well.

A particular problem caused by the extreme mobility of birds is whether paleoecological or paleoenvironmental reconstructions based on avifaunas may be vitiated by the presence of vagrants well outside their normal ranges. Some light may be shed on this problem by studying the only group of birds which can be definitely identified as vagrants, even as fossils, i. e. obligate seabirds at inland localities. The table on page 8 shows the number of such records among the ca. 20,000 avian records (defined as one species occurring in one layer on one site) in this catalogue.

It should be noted that only two of species listed have any appreciable number of inland records, viz., *Rissa tridactyla*, which regularly migrates over land and *Alle alle*, which must have been an extremely abundant species in the North Atlantic in the Pleistocene and which frequently is found inland in northern Europe after storms even today. The small number of records even from these two species, which must have been among the "most common" Pleistocene vagrants, suggest that the probability of a vagrant species occurring in a fossil avifauna is quite small.

TYPES OF SITES

The most common source of fossils is undoubtedly karst caves, which make up more than 80% of all localities in the catalogue. Most caves that have been investigated have been done so because of the presence of human cultural deposits; the avian fossils have been obtained as a byproduct of these archaeological investigations. Caves containing fossils, but without any cultural deposits, almost certainly outnumber the sites with archaeological remains, but such places have been systematically investigated only in a few areas (e. g., Fränkische Alb and

Species	Coastal Records	Inland Records
<i>Diomedea</i> sp.	1	0
<i>Fulmarus glacialis</i>	2	0
<i>Pterodroma leucoptera</i>	1	0
<i>Calonectris diomedea</i>	11	2
<i>Calonectris leucomelas</i>	1	0
<i>Puffinus gravis</i>	1	0
<i>Puffinus griseus</i>	5	1
<i>Puffinus puffinus</i>	10	0
<i>Puffinus yelkouan</i>	7	0
<i>Puffinus holeræ</i>	2	0
<i>Puffinus nestori</i>	1	0
<i>Puffinus</i> sp.	1	0
<i>Hydrobates pelagicus</i>	5	0
<i>Oceanodroma leucorhoa</i>	0	1
<i>Sula bassana</i>	8	0
<i>Phalacrocorax capillatus</i>	2	0
<i>Phalacrocorax pelagicus</i>	1	0
<i>Phalacrocorax aristotelis</i>	18	1
<i>Catharacta skua</i>	1	0
<i>Rissa tridactyla</i>	6	4
<i>Pagophila eburnea</i>	1	0
<i>Uria aalge</i>	13	0
<i>Uria lomvia</i>	2	0
<i>Uria</i> sp.	3	0
<i>Alca torda</i>	9	0
<i>Pinguinus impennis</i>	15	0
<i>Cepphus grylle</i>	3	1
<i>Synthliboramphus antiquus</i>	1	0
<i>Alle alle</i>	6	10
<i>Cerorhinca monocerata</i>	1	0
<i>Fratercula arctica</i>	7	1
<i>Mancalla</i> sp.	1	0

Hungary). Fissure fillings and abris (cavities) in karst areas may be regarded as variants of karstic caves and are affected by approximately the same depositional and taphonomic factors.

Other types of caves are uncommon, although there are a few cases of sea caves (e. g., Skjonghelleren in Norway and Bacon Hole in Wales).

Open sites are more variable. Among the commoner types are travertine deposits (e. g., Ehringsdorf, Süttö), open archaeological sites (usually in loess or other lime-rich substrates where bone preservation is good, e. g., Predmosti), lake or bog deposits (e. g., Bilzingsleben) and river terraces (e. g., Swanscombe). Faunal remains of Pleistocene age are only very rarely preserved at open sites in areas of well-drained and/or acid soils. Petroleum tar deposits occur in a few cases (Binagady, Karmalki, Starunia). Of these three sites, Binagady in Azerbaijan is exceptionally rich (108 species) and may be regarded as a Palearctic counterpart of the better known Rancho La Brea tar pits. More unusual locations include de-

posits of silica gel (German *Kieselgur*) (BRD 42 Grevenhof) and low-grade lignite (CH 9 Gondiswil-Zell).

TAPHONOMY

This is not the place for even a brief review of the taphonomic factors that affect the accumulation and preservation of avian bones. This subject has been the subject of several recent studies of which Andrews (1990), Baird (1991) and Brain (1981) may be profitably consulted.

SYSTEMATICS

I have not tried to revise the systematic position of fossil taxa included in this catalogue, except for general remarks given in some cases in the systematic list. I have decided to use the time-honored Wetmore system when listing bird species in the systematic list. The exact sequence and nomenclature is in accordance with the Swedish Ornithological Society's list of recent Holarctic Bird Species (Sveriges Ornitologiska Förening [SOF] 1995), which in turn is largely based on Beaman's recent list (Beaman 1994). Extinct taxa not included in these lists have been inserted according to my own judgment about their probable relationship to extant species.

GEOGRAPHIC LIMITS

For reasons of convenience I have chosen to use national borders when defining the "Palearctic". In the context of this book the Palearctic is therefore considered to consist of the Eurasian landmass north and west of the eastern/southern borders of Iran, Afghanistan and China. The whole Arabian peninsula is included, as is North Africa (Morocco, Algeria, Tunisia, Libya and Egypt). Also included are Iceland, the Faeroes, the Azores, Madeira and the Canaries, all the Mediterranean islands, Taiwan, Japan and surrounding islands, including the Ryukyus and the Bonin islands. The Kuriles and Komandorski islands are also included as are the islands in the Arctic Ocean from Jan Mayen east to Wrangel Land.

Pleistocene birds have been recorded from the majority of the countries within these limits. The exceptions, as far as I am aware, are Finland, Estonia, Latvia, Lithuania, Albania, Kuwait, Bahrain, UAE, Oman, Yemen, Afghanistan, Tajikistan, Turkestan, North and South Korea, and Taiwan. In most of these, except Finland and the Baltic countries, sites with Pleistocene birds are probably not uncommon, but have not yet been searched for.

MAPS

A sketch map showing the positions of the sites treated is included for each country. These maps are based on a variety of sources and, therefore, are not drawn to consistent scale or style. In some cases the location of the site is unknown

or I have been unable to determine its exact geographical position. These are indicated on each map.

SITE LIST

The countries are sequenced in alphabetical order, as are the localities within each country. In a few cases data on additional sites reached me after the list had been compiled. These are listed last for the country in question and, therefore, are not in alphabetical order.

For each site the following data are given (if available):

A code and a name: The code consists of two letters indicating the country in which the site is situated and a number (e. g., FR 171). This code has no particular significance and is simply used to save space when referring to the locality in the systematic list. There are a number of gaps in the code sequences where sites have been omitted, either because they have proven not to date from the Pleistocene or have been found to be identical with another site. The latter occurrence is more common than might be thought since many sites are known by completely different names and their identity may be far from obvious. When a place is known by more than one name it is listed under the most frequently used name and the alternatives are indicated in the "Notes" field. All variant site names are also listed in the site index (Chapter 6). This may seem overly pedantic, but I have found that errors due to duplication and confusion of sites are surprisingly common in the literature.

The country codes may seem somewhat illogical. This is at least partly due to the drastic changes in political geography which have occurred since I originally started using these codes in my database about ten years ago. The codes are listed in the table below.

Country	Code	Country	Code	Country	Code
Algeria	AL	Iceland	IC	Norway	NO
Armenia	AR	Iran	IRN	Outer Mongolia	MG
Austria	AU	Iraq	IRQ	Poland	PO
Azerbaijan	AZ	Ireland	IR	Portugal	PG
Belgium	BE	Israel	IS	Romania	RM
Belorussia	BR	Italy	IT	Russia	RO
Bosnia-Herzegovina	BH	Japan	JA	Saudi Arabia	SA
Bulgaria	BU	Jordan	JO	Serbia	SR
China	CI	Kazakhstan	KA	Slovakia	SK
Croatia	CR	Kirghizia	KI	Slovenia	SL
Cyprus	CY	Lebanon	LI	Spain	SP
Czech Republic	CZ	Libya	LB	Sweden	SV
Denmark	DA	Luxembourg	LU	Switzerland	CH
Egypt	EG	Macedonia	MK	Syria	SY
France	FR	Malta	MA	Turkey	TK
Georgia	GE	Moldova	MO	Ukraine	UR
Germany	BRD	Montenegro	MN	United Kingdom	UK
Greece	GR	Morocco	MR	Uzbekistan	UZ
Hungary	HU	Netherlands	NE		

Region: In most countries the region where the locality is situated is given within parentheses after the site name. In most cases these are administrative subdivisions, e. g., départements in France, counties in Great Britain or oblasts in Russia, but in some cases purely geographical terms are used. This is the case for Hungary where almost all sites are concentrated in a few areas of limestone hills, and where it seemed more logical to use these rather than administrative areas.

Alt. (Altitude): This field indicates the altitude of the site in meters above mean sealevel, if known. The figure is usually only approximate as many sites have a considerable vertical extension. Sites below sealevel are denoted by a “–” before the numeral.

Type: Indicates whether the site is open (“o”) or a cave or abri (“c”).

Sources: Lists the sources from which the information about the site and its avifauna are derived. Sources that I have been unable to check personally are within parentheses. The full references are found in Chapter 7.

Date: This field normally begins with the two-letter code EP, MP or LP for either Early, Middle or Late Pleistocene. Composite codes, e. g., MP/LP, mean that the date of the site is either uncertain or that the site spans parts of both time intervals. The code is followed by more precise dating information if available. For explanations of the terms used, see the Glossary (Ch. 4). If no dating information is given the site is thought to be of Pleistocene age, but no further information is available.

Layer: At a multilayer site this indicates the layer(s) at which the avifauna was found. At places where different systems for designating layers have been used, alternative names are indicated within brackets. Layers are arranged from top to bottom. At sites consisting of subsites which are not stratigraphically superimposed the subsites are arranged in alphabetical/numerical order.

Fauna: Lists the scientific names of the avian taxa occurring at the site or layer.

Note that at multilayer sites the three fields, viz., *Layer*, *Date* and *Fauna* are repeated for each layer that contains an avifauna. This practice is also used in some other cases where a site or a fauna has been investigated and/or identified at different times or by different persons.

Det. (Determiner): The name(s) of the person(s), if known, who identified the avifauna.

Stored: The name (sometimes abbreviated) of the institution where the remains are kept, if known.

Notes: Any further relevant information about the site or the fauna, e. g., alternative names for the locality, discrepancies between sources or comments on, for example, stratigraphy or dating. In some cases notes are given for particular layers at a site.

SYSTEMATIC LIST

All taxa that have been reported as fossils from the Pleistocene of the Palearctic are listed in systematic order. In addition, a number of species occurring in the Palearctic today, but not known as fossils from there, are listed if they are known to occur as Pleistocene fossils outside the Palearctic. The sequence and nomenclature is in accordance with the Swedish Ornithological Society's list of recent Holarctic Bird Species (SOF 1995), which is largely based on Beaman's (1994) list. Extinct species not included in Beaman's list have been inserted in accordance with their inferred relationship to extant forms.

The following data are given for each taxon:

Scientific name, including author and year of publication: For extant species the English name, according to Beaman's (1994) usage, is also given. Extinct species are denoted by a cross "+" before the scientific name and extinct subspecies by "(+)".

Stratigraphic range: Includes only records from the Palearctic. If the oldest site is not among those listed for the species (i. e., pre-Pleistocene) the name of the oldest site(s) is indicated. Dates are given according to the MN/MNQ biostratigraphic scheme, if possible. Records outside the Palearctic older than the oldest Palearctic records are indicated in 'Notes', if known.

Sites where found: Sites are indicated by the codes used in the site list. Early Pleistocene (EP), Middle Pleistocene (MP) and Late Pleistocene (LP) locations are listed separately. In each case places are listed in the same order as in the site list. Sites which can only be dated as Pleistocene are prefaced by "?". If the identification of a taxon is uncertain, this is indicated by "?", "(cf)" or "(aff)" after the site code, depending on the usage in the original source.

Notes: Any notes on taxonomy, identification or other matters which are relevant to the taxon.

ACKNOWLEDGMENTS

Very many persons, in fact virtually every paleontologist working on Pleistocene Palearctic birds, have assisted me during the compilation of this catalogue, but I would particularly like to thank Storrs L. Olson (Washington, DC) for his help and encouragement, Cecile Mourer-Chauviré (Lyon) for checking the section on France and for providing a large amount of unpublished information on french sites, Zygmunt Bochenski (Kraków) for revising the section on Poland and for his invaluable assistance in obtaining copies of otherwise inaccessible papers from the ex-Soviet Union and, last but definitely not least, the personnel of Linköping University Library, without whose patience and persistence this catalogue would have been much less complete.

2

SITE LIST

ALGERIA

AL 1 Erg Tihodaine

Alt.: 1,200

Type: o

Source: Thomas 1977

Date: MP Acheulean >250,000 BP, "Riss 1/2 or Mindel/Riss"

Fauna: *Platalea* sp., *Fulica* sp.

Det.: Thomas

AL 2 Hassi-el Ratmaia in the Grand Erg

Type: o

Source: Lambrecht 1933

Fauna: *Struthio camelus*

AL 3 Mouila-Maatalah

Type: o

Source: Lambrecht 1933

Fauna: *Struthio camelus*

AL 4 Touggourt

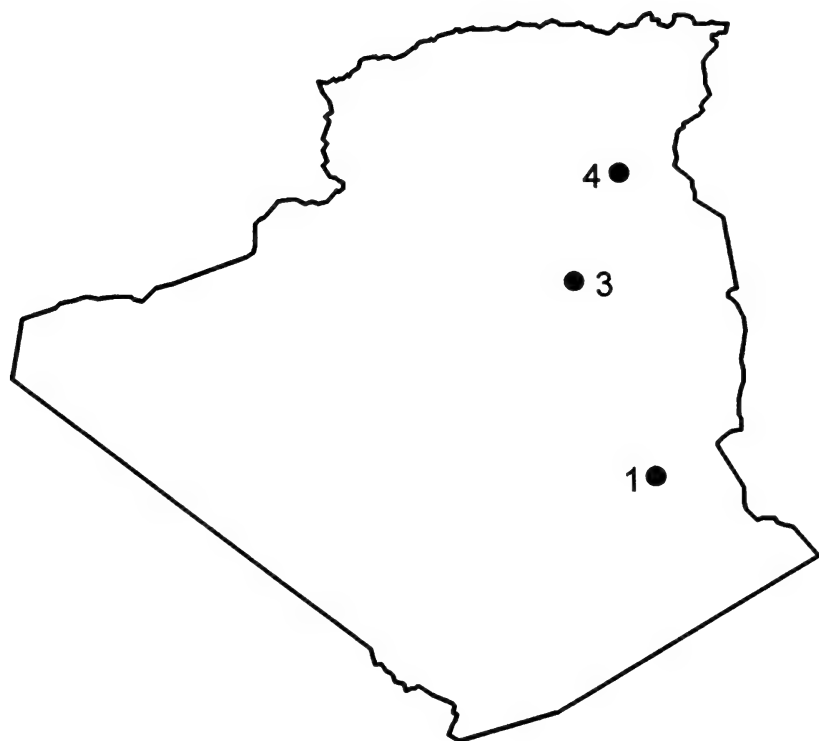
Type: o

Sources: Brodkorb 1978; Sauer 1969 (Andrews 1911)

Fauna: *Struthio* sp.?

Det.: Andrews; Sauer

Notes: eggshell described as "*Psammornis rothschildi* Andrews, 1911" but indistinguishable from *Struthio* (Sauer 1969)



Not exactly localized sites: 2

ALGERIA (AL)

ARMENIA

AR 1 Jerevan

Type: c

Sources: Burchak-Abramovich 1974, 1975 (Erincjan 1970)

Date: LP Mousterian

Fauna: *Tetrao mlokosiewiczii*, *Columba* sp., *Larus* sp.

Det.: Burchak-Abramovich [For map see p. 000]

AR 2 Jerevan

Type: c

Source: Baryshnikov & Potapova 1988

Fauna: *Anas platyrhynchos*, *Corvus corax*

[For map see p. 198.]

AUSTRIA

AU 1 Aggsbach (Niederösterreich)

Type: o

Sources: Felgenhauer 1951; Lambrecht 1933; Otte 1981 (Obermaier 1909)

Date: LP Gravettian 14C=22–25,000 BP

Fauna: *Lagopus* sp., *Aquila* sp.**AU 2 Deutsch-Altenburg (Niederösterreich)**

Type: c

Source: Jánossy 1981b

Layer: Locality 2C1

Date: EP Older Biharium

Fauna: *Perdix perdix jurcsaki*, *Athene* cf. *veta*

Layer: Locality 4B

Date: EP Older Biharium MNQ 19

Fauna: *Falco tinnunculus atavus*, *Francolinus capeki*, *Glaucidium* cf. *passerinum*, *Dendrocopos submajor*, *Hirundo* cf. *rustica*, *Sylvia* cf. *atricapilla*, *Turdus* cf. *viscivorus*, *Turdus* cf. *philomelos*, *Sitta* cf. *europaea*, *Sitta* sp., *Serinus* cf. *serinus*, *Pinicola* cf. *enucleator*, *Garrulus* cf. *glandarius*

Det.: Jánossy

AU 3 Drachenhöhle bei Mixnitz (Steiermark)

Alt.: 949

Type: c

Sources: Lambrecht 1933; Wolf 1938–41 (Abel & Kyrle 1931)

Date: LP R/W or W I/II

Fauna: *Accipiter nisus*, *Alectoris graeca*, *Dendrocopos leucotos*, *Parus caeruleus*, *Lanius* sp., *Corvus monedula*, *Garrulus glandarius*, *Nucifraga caryocatactes*, *Pica pica*, *Pyrrhocorax graculus*

Det.: Lambrecht

AU 4 Eichmaierhöhle (Niederösterreich)

Type: c

Sources: Lambrecht 1933; Woldrich 1893

Fauna: *Falco* sp.?, *Lagopus lagopus*, *Lagopus mutus*, *Gallus* sp., *Corvus monedula* ?

Det.: Woldrich

AU 5 Grosse Badlhöhle (Steiermark)

Alt.: 495

Type: c

Sources: Fladerer 1993; Mottl 1953; Musil 1980b (Mottl 1975)

Layer: 3

Date: LP "Mittelwürminterstadial"

Fauna: *Lagopus lagopus*

Det.: Mottl ?

Notes: Layer 3 (Musil 1980b); perhaps = Layer 6 according to Mottl (1953) ?

Layer: "Kleinsäugerschicht"

Date: LP LG 14C=12,400±190 BP

Fauna: *Lagopus lagopus*, *Lagopus mutus*, cf. *Tetrao tetrix*, *Prunella modularis*

Det.: Mlíkovský

AU 6 Gudenushöhle (Niederösterreich)

Alt.: 560

Type: c

Sources: Lambrecht 1933; Mlíkovský in press; Woldrich 1893 (Menghin 1919)

Date: LP

Fauna: *Anas* sp., *Falco tinnunculus*, *Falco peregrinus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Crex crex*, *Nyctea scandiaca*, *Alauda arvensis*, *Turdus* spp., *Corvus monedula*, *Coccothraustes coccothraustes*, *Emberiza* spp.

Det.: Woldrich; Mlíkovský

Stored: Naturhistorisches Museum, Wien

AU 7 Hundsheim (Niederösterreich)

Type: c

Sources: Jánossy 1972a, 1974c, 1976c, 1977a, 1980, 1981a; Lambrecht 1933 (Ehrenberg 1914)

Date: MP "Early MP" MNQ 22

Fauna: *Tetrao praeurogallus*, *Falco tinnunculus atavus*, *Glaucidium* cf. *passerinum*, *Strix intermedia*, *Gyps melitensis*, *Otis lambrechtii*, *Apus apus palapus*, *Merops* cf. *apiaster*, *Upupa phoeniculoides*, *Dendrocopos submajor*, *Dendrocopos praemedius*, *Turdus* aff. *viscivorus*, *Turdus* cf. *philomelos*, *Phylloscopus* sp., *Regulus* sp., *Muscicapa* cf. *striata*, *Anthus* cf. *cervinus*, *Pinicola* sp., *Aquila* cf. *heliaca*, *Tetrao* cf. *partium*, *Perdix* cf. *perdix*, *Coturnix* cf. *coturnix*, *Scolopax* cf. *rusticola*, *Columba* cf. *palumbus*, *Alauda* cf. *arvensis*, *Hirundo* cf. *rustica*, *Motacilla* sp., *Phoenicurus* cf. *phoenicurus*, *Oenanthe* cf. *oenanthe*, *Parus* cf. *major*, *Parus* cf. *palustris*, *Pica pica major*, *Pyrhocorax* cf. *graculus*

Det.: Jánossy

AU 8 Hundsteig bei Krems (Niederösterreich)

Type: o

Sources: Lambrecht 1933 (Wiegers 1912)

Date: LP, probably Aurignacian ca. 35,000 BP

Fauna: *Lagopus lagopus*

Notes: also known as Krems-Hundsteig

AU 9 Luegloch (Steiermark)

Alt.: 550

Type: c

Sources: Mottl 1953; Musil 1980b; Spahni 1954

Layer: 4

Date: LP, LG ?

Fauna: *Falco* sp., *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, Strigidae, *Pyrhcorax pyrrhcorax*

Notes: Gelbbrauner Lehm

Layer: 3

Date: LP, Late Würmian Pleniglacial ?

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Pyrhcorax pyrrhcorax*

Notes: Nagerschicht, Lössartiges hellgelbes sediment

Layer: 2

Date: LP Mid-Würmian ?

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Pyrhcorax pyrrhcorax*, Strigidae

Notes: Grauer sand

Layer: 1

Date: LP Mid-Würmian ?

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Surnia ulula*

Notes: Rostroter Lehm

Det.: Mottl ?

Notes: also known as Oxenloch

AU 10 Merkenstein (Niederösterreich)

Alt.: 441

Type: c

Source: Wettstein & Mühlhofer 1938

Layer: d2

Date: LP

Fauna: *Anser albifrons*, *Anas platyrhynchos*, *Haliaeetus albicilla*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Rallus aquaticus*, *Pluvialis squatarola*?, *Calidris ferruginea*, *Larus ridibundus*, *Cuculus canorus*, *Nyctea scandiaca*, *Asio flammeus*?, *Dendrocopos major*, *Cinclus cinclus*, *Turdus viscivorus*, *Turdus philomelos*, *Parus major*?, *Lanius senator*, *Lanius collurio*, *Corvus monedula*, *Nucifraga caryocatactes*, *Pyrhcorax graculus*, *Coccothraustes coccothraustes*, *Carduelis chloris*, *Carduelis flammea*, *Pyrhula pyrrhula*, *Pinicola enucleator*, *Loxia* sp.?, *Plectrophenax nivalis*, *Emberiza schoeniclus*

Det.: Wettstein; Lambrecht

AU 11 Repolusthöhle (Steiermark)

Alt.: 525

Type: c

Sources: Fladerer 1993; Jánossy 1976c, 1978, 1989a; Mottl 1951; Musil 1980b (Mottl 1975)

Layer: Grauer Sand

Date: LP "R-W"

Fauna: *Aquila* sp., *Lagopus mutus*

Layer: 6

Date: LP R/W ?

Fauna: *Tetrao urogallus*

Layer: Rostbrauner Phosphaterde

Date: MP Late MP , IS 6–7

Fauna: *Gyps melitensis aegypoides*

Det.: Mottl; Jánossy

Stored: Museum Joanneum, Graz

Notes: also known as Rostbraune Lehm; bird originally determined as *Aquila* sp. by Mottl (1951)

AU 12 Salzofenhöhle (Steiermark)

Alt.: 2,005

Type: c

Source: Ehrenberg 1959

Date: LP ?

Fauna: *Pyrhcorax pyrrhcorax*

AU 13 Schlenkendurchgangshöhle (Salzburg)

Alt.: 1,550

Type: c

Sources: Ehrenberg & Mais 1969, 1977

Date: LP ?

Fauna: *Crex crex*, *Turdus viscivorus* ?, *Pyrhcorax graculus*

Det.: Rokitansky

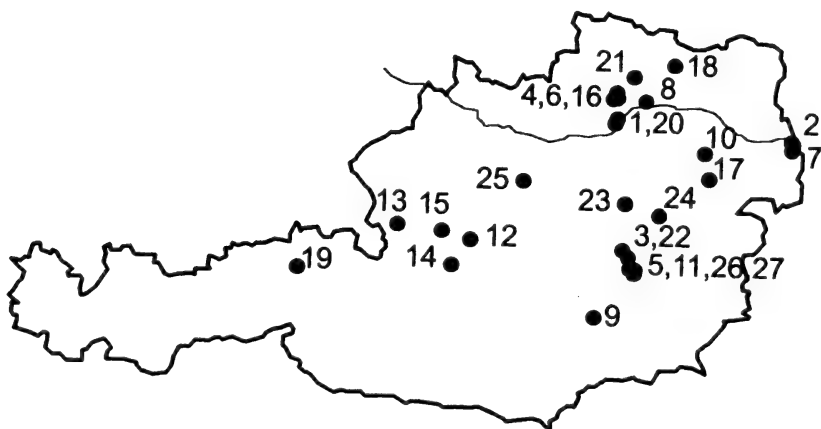
Notes: also known as Schlenkenhöhle

AU 14 Schreiberwandhöhle (Oberösterreich)

Alt.: 2,200

Type: c

Sources: Ehrenberg & Sickenberg 1929; Lambrecht 1933; Musil 1980b; Wolf 1938–41



AUSTRIA (AU)

Date: LP R/W ?

Fauna: *Turdus philomelos*, *Turdus viscivorus*, *Corvus monedula*, *Carduelis cannabina*

Det.: Lambrecht

Notes: *Lanius excubitor* also recorded, but only as subfossil of Holocene age

AU 15 Schusterloch (Oberösterreich)

Type: c

Source: Wolf 1938–41 (Teller 1880)

Date: "Alluvium"

Fauna: *Tetrao urogallus*

AU 16 Schusterlucke (Niederösterreich)

Type: c

Sources: Lambrecht 1933; Mlíkovský in press.; Mlíkovský & Lukas 1991; Woldrich 1893

Date: LP Early Würm ca. 115,000 BP

Fauna: *Anser* cf. *anser*, *Anas crecca*, *Anas acuta*, *Anas querquedula*, *Aythya fuligula*, *Melanitta fusca*, *Bucephala clangula*, *Mergus serrator*, *Mergus merganser*, *Falco tinnunculus*, *Falco peregrinus*, *Lagopus lagopus*, *Lagopus mutus*, *Bonasa bonasia*, *Tetrao tetrix*, *Tetrao urogallus*, *Perdix perdix*, *Coturnix coturnix*, *Gallus* sp., *Rallus aquaticus*, *Crex crex*, *Charadrius morinellus*, *Philomachus pugnax*, *Gallinago gallinago*, *Gallinago media*, *Scolopax rusticola*, *Columba oenas*, *Columba palumbus*, *Streptopelia turtur*, *Cuculus canorus*, *Nyctea scandiaca*, *Surnia ulula*, *Strix nebulosa*, *Asio otus*, *Picus canus*, *Picus viridis*, *Dendrocopos leucotos*, *Hirundo rustica*, *Cinclus cinclus*, *Prunella collaris*, *Oenanthe* cf. *oenanthe*, *Turdus* sp., *Garrulus glandarius*, *Pica pica*, *Nucifraga caryocatactes*, *Pyrhocorax graculus*, *Pyrhocorax pyrrhocorax*, *Corvus monedula*, *Corvus corax*, *Carduelis flammea*

Det.: Woldrich; Mlíkovský

Stored: Naturhistorisches Museum, Wien

AU 17 Schwarzgrabenhöhle (Niederösterreich)

Alt.: 620

Type: c

Source: Spahni 1954

Date: LP Mousterian-Magdalenian ?

Fauna: *Lagopus lagopus*

AU 18 Teufelslucken (Niederösterreich)

Alt.: 320

Type: c

Source: Soergel 1966

Layer: "subfossil"

Date: LP ?

Fauna: *Anser anser*, *Anser albifrons*, *Anser erythropus*, *Anser fabalis*, *Anas platyrhynchos*, *Anas acuta*, *Anas crecca*, *Anas querquedula*, *Anas penelope*, *Anas falcata*, *Aythya nyroca*, *Mergus merganser*, *Falco tinnunculus*, *Tetrao tetrix*, *Tetrao urogallus*, *Perdix*

perdix, *Coturnix coturnix*, *Fulica atra*, *Otis tarda*, *Vanellus vanellus*, *Columba oenas*, *Bubo bubo*, *Asio otus*, *Asio flammeus*, *Dendrocopos major*, *Turdus pilaris*, *Turdus torquatus*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Nucifraga caryocatactes*, *Corvus corone*, *Coccothraustes coccothraustes*

Notes: lighter-colored "subfossil" bones

Layer: "fossil"

Date: LP ?

Fauna: *Anser anser*, *Tadorna cf. ferruginea*, *Anas platyrhynchos*, *Aythya ferina*, *Aegyptius monachus*, *Aquila heliaca*, *Lagopus lagopus*, *Tetrao tetrix*, *Tetrao urogallus*, *Grus grus*, *Crex crex*, *Charadrius hiaticula*, *Scolopax sp.*, *Numenius phaeopus*, *Actitis hypoleucos*, *Cuculus canorus*, *Aegolius funereus*, *Dendrocopos major*, *Turdus pilaris*, *Turdus viscivorus*, *Pica pica*, *Corvus corone*, *Fringilla montifringilla*, *Montifringilla nivalis*, *Emberiza citrinella*

Notes: dark-grey, well-fossilized bones

Det.: Soergel

AU 19 Tischoferhöhle (Tirol)

Alt.: 694

Type: c

Sources: Lambrecht 1933; Wolf 1938–41 (Schlosser 1919)

Date: LP

Fauna: *Lagopus mutus*, *Bubo bubo*, *Turdus sp.*, *Pyrhhorax graculus*

Det.: Schlosser ?

Notes: also known as Schoferhöhle, Bärenhöhle bei Kufstein

AU 20 Willendorf (Niederösterreich)

Type: o

Sources: Felgenhauer 1951; Grimm 1970; Lambrecht 1933; Woldrich 1893

Date: LP EUP 14C=34,000–41,700 BP

Fauna: *Aquila chrysaetos*

AU 21 Zwerglloch (Niederösterreich)

Alt.: 275

Type: c

Source: Bochenski & Tomek 1994

Date: LP/Holocene

Fauna: *Podiceps cristatus*, *Anser erythropus*, *Anser anser*, *Anser cf. albifrons*, *Anas platyrhynchos*, *Anas crecca*, *Anas querquedula*, cf. *Aythya fuligula*, *Bucephala clangula*, *Mergus merganser*, cf. *Circus cyaneus*, *Falco tinnunculus*, *Falco cf. naumanni*, *Falco cf. subbuteo*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Gallus gallus*, *Perdix perdix*, *Coturnix coturnix*, *Meleagris gallopavo*, *Rallus aquaticus*, *Crex crex*, *Numenius sp.*, *Scolopax rusticola*, *Gallinago media*, *Actitis hypoleucos*, *Columba livia*, *Columba oenas*, *Asio otus*, *Strix aluco*, *Apus apus*, *Picus canus*, *Alauda arvensis*, *Hirundo rustica*, *Delichon urbica*, *Anthus spinoletta*, *Anthus cf. pratensis*, *Motacilla cf. alba*, *Lanius collurio*, *Prunella modularis*, *Erithacus rubecula*, *Luscinia cf. luscinia*, *Phoenicurus ochruros*, *Turdus cf. pilaris*, *Turdus merula*,

Turdus philomelos, *Turdus iliacus*, *Turdus* cf. *torquatus*, *Turdus viscivorus*, *Ficedula hypoleuca/albicollis*, *Parus major*, *Parus palustris*, *Parus* cf. *montanus*, *Sitta europaea*, *Sturnus vulgaris*, *Garrulus glandarius*, *Pica pica*, *Corvus corone*, *Corvus corax*, *Corvus monedula*, *Emberiza citrinella*, *Emberiza* sp., *Miliaria calandra*, *Calcarius lapponicus*, *Fringilla coelebs*, *Coccothraustes coccothraustes*, *Montifringilla nivalis*

Det. Bochenski & Tomek

AU 22 Grosse Offenbergerhöhle (Steiermark)

Alt.: 670

Type: c

Source: Bochenski & Tomek 1994

Date: LP/Holocene

Fauna: *Anser erythropus*, *Anas platyrhynchos*, *Lagopus lagopus*, *Lagopus mutus*, *Bonasa bonasia*, *Gallus gallus*, cf. *Gallinula chloropus*, *Scolopax rusticola*, *Gallinago media*, *Lymnocyptes minimus*, *Tringa* sp., *Nyctea scandiaca*, *Asio flammeus*, *Eremophila alpestris*, *Hirundo rustica*, *Delichon urbica*, *Cinclus cinclus*, *Phoenicurus ochruros*, cf. *Oenanthe oenanthe*, *Acrocephalus arundinaceus*, *Pyrhacorax graculus*, *Pyrhacorax pyrrhacorax*, *Emberiza* sp., *Montifringilla nivalis*

Det: Bochenski & Tomek

AU 23 Hohlensteinhöhle (Steiermark)

Alt.: 1,031

Type: c

Source: Bochenski & Tomek 1994

Date: LP/Holocene

Fauna: *Lagopus lagopus*, *Lagopus mutus*, cf. *Gallinula chloropus*, *Nyctea scandiaca*, *Pyrhacorax graculus*

Det: Bochenski & Tomek

AU 24 Knochenhöhle (Steiermark)

Alt.: 860

Type: c

Source: Bochenski & Tomek 1994

Date: LP/Holocene

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Crex crex*, *Pyrhacorax graculus*

Det: Bochenski & Tomek

AU 25 Nixloch (Oberösterreich)

Alt.: 770

Type: c

Sources: Mlíkovský 1992a; Bochenski & Tomek 1994 (Fladerer et al. 1992)

Layer: "Kleinsäugerschicht"

Date: LP 14C=10,550±150 BP

Fauna: *Falco tinnunculus*, *Bonasa bonasia*, *Lagopus lagopus*, *Lagopus mutus*, *Gallinula chloropus*, *Charadrius morinellus*, *Philomachus pugnax*, *Gallinago media*,

Surnia ulula, *Aegolius funereus*, cf. *Bubo*/*Nyctea* sp., *Picus canus*, *Hirundo daurica/rustica*, *Prunella collaris*, *Erithacus rubecula*, *Turdus iliacus*, *Turdus* spp., *Lanius excubitor*, *Garrulus glandarius*, *Nucifraga caryocatactes*, *Pyrhcorax graculus*, *Pyrhcorax pyrrhcorax*, *Pinicola enucleator*

Det: Mlíkovský

Stored: Institut für Paläontologie der Universität Wien

AU 26 Tropfsteinhöhle (Steiermark)

Type: c

Source: Fladerer 1993

Layer: B (17–19)

Date: LP “Hochglazial-frühem Spätglazial”

Fauna: *Falco* cf. *tinnunculus*, *Lagopus* sp., *Pyrhcorax* sp.

Notes: also known as Kugelsteinhöhle II

AU 27 Tunnelhöhle (Steiermark)

Type: c

Source: Fladerer 1993

Layer: A

Date: LP ca. 18–25 KA BP

Fauna: *Lagopus* sp., *Pyrhcorax* sp.?

Notes: also known as Kugelsteinhöhle III

AZERBAIJAN

AZ 1 Azykh (Nagorno Karabakh)

Type: c

Sources: Baryshnikov & Potapova 1988; Burchak-Abramovich 1991; Ganja & Burchak-Abramovich 1992 (Burchak-Abramovich & Aliev 1989, 1990)

Date: MP “Early” Acheulean

Fauna: *Falco tinnunculus*, *Perdix perdix*, *Gallus karabachensis*, *Columba livia*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Notes: also known as Asikhskaya, Asychskaya; dating of this site is controversial; some sources consider it older than the Brunhes/Matuyama boundary which would put it in EP (MNQ 20)

AZ 2 Binagady

Type: o

Sources: Burchak-Abramovich 1962, 1965c, 1966a, 1968a,b, 1975

Date: MP/LP

Fauna: *Podiceps auritus*, *Phalacrocorax carbo*, *Pelecanus crispus palaeocrispus*, *Platalea leucorodia*, *Ciconia nigra*, *Plegadis falcinellus*, *Ardea cinerea*, *Ardea purpurea*, *Egretta alba*, *Egretta garzetta*, *Bubulcus ibis*, *Nycticorax nycticorax*, *Ixobrychus minutus*, *Botaurus stellaris*, *Cygnus olor*, *Anser azerbaijanicus*, *Anser anser*, *Anser albifrons*, *Branta ruficollis*, *Tadorna ferruginea*, *Tadorna tadorna*, *Anas acuta*, *Anas*

crecca, *Anas strepera*, *Anas platyrhynchos palaeoboschas*, *Anas penelope*, *Anas querquedula*, *Anas clypeata*, *Netta rufina*, *Aythya ferina*, *Aythya nyroca*, *Aythya marila asphaltica*, *Melanitta fusca*, *Clangula hyemalis*, *Bucephala clangula*, *Mergus albellus*, *Falco peregrinus*, *Falco tinnunculus*, *Accipiter gentilis*, *Circus cyaneus*, *Circus macrourus*, *Circus aeruginosus*, *Milvus sp.*, *Haliaeetus albicilla*, *Neophron percnopterus*, *Gyps fulvus*, *Aegypius monachus*, *Aquila chrysaetos*, *Aquila heliaca*, *Aquila rapax*, *Aquila clanga*, *Aquila pomarina*, *Hieraaetus pennatus*, *Buteo rufinus*, *Perdix perdix*, *Alectoris graeca*, *Columba livia*, *Pterocles orientalis*, *Fulica atra*, *Porzana sp.*, *Grus leucogeranus*, *Grus bogatshevi*, *Grus grus*, *Anthropoides virgo*, *Otis tarda*, *Tetrax tetrax*, *Burhinus oedicnemus*, *Pluvialis squatarola*, *Pluvialis fulva*, *Charadrius morinellus*, *Vanellus vanellus*, *Calidris sp.*, *Philomachus pugnax*, *Philomachus binagadensis*, *Tringa erythropus*, *Tringa totanus*, *Tringa nebularia*, *Tringa ochropus*, *Tringa glareola*, *Actitis hypoleucos*, *Xenus cinereus*, *Limosa limosa?*, *Limosa lapponica*, *Numenius arquata*, *Numenius tenuirostris*, *Numenius phaeopus*, *Gallinago gallinago*, *Larus argentatus*, *Larus hyperboreus?*, *Nyctea scandiaca*, *Bubo bubo*, *Bubo binagadensis*, *Asio flammeus*, *Asio otus*, *Otus scopsps?*, *Athenenoctua*, *Aegolius funereus*, *Calandrella rufescens*, *Melanocorypha bimaculata*, *Turdus merula*, *Turdus iliacus*, *Corvus corax*, *Corvus ruficollis*, *Corvus corone*, *Corvus frugilegus*, *Pica pica*

Det.: Serebrovskii; Burchak-Abramovich

[For map see p. 198.]

BELGIUM

BE 1 Belle-Roche (Liège)

Alt.: 160

Type: c

Source: Cordy 1993

Date: MP IS 13/15 Upper Cromerian ca. 500 KA BP

Fauna: *Tetrao sp.?*

Det.: Groessens-Van Dyck

BE 2 Goyet (Namur)

Alt.: 140

Type: c

Source: Friant 1952

Date: LP Early Aurignacian-Mousterian

Fauna: *Gyps fulvus spelaeus*

Det.: Friant

BE 3 Grotte Walou (Liège)

Type: c

Sources: Groessens-Van Dyck 1989a,b, 1993

Layer: C6:C-D

Date: LP Aurignacian 14C=29,470±640–29,800±760 BP

Fauna: *Aquila sp.?*, *Lagopus lagopus*, *Lagopus mutus*, *Asio flammeus*, *Hirundo rustica*, cf. *Hirundo rupestris*, *Cinclus cinclus*, *Oenanthe oenanthe*, *Turdus pilaris*

Layer: C6:A-C

Date: LP

Fauna: *Lagopus* sp., *Perdix perdix*, *Turdus pilaris*

Layer: C6:A-B

Date: LP

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Crex crex*, *Porzana porzana*, *Charadrius morinellus*, *Pluvialis apricaria*, *Pluvialis squatarola*, *Tringa totanus*, *Tringa* cf. *ochropus*, *Gallinago gallinago*, *Asio flammeus*, *Lullula arborea*, *Hirundo rustica*, *Cinclus cinclus*

Det.: Groessens-Van Dyck

BE 4 Grotte de Coléoptère (Liège)

Alt.: 140

Type: c

Sources: Arts & Deeben 1987; Mourer-Chauviré 1983b

Date: LP LG Late Magdalenian 14C=12,150–12,870 BP

Fauna: *Aquila* sp., *Lagopus lagopus*, *Lagopus mutus*

BE 5 Liège (Liège)

Source: Lambrecht 1933

Fauna: *Gypaetus barbatus*

BE 6 Maisières-Canal (Hainaut)

Alt.: 35

Type: o

Sources: Ballmann 1973a

Date: LP "Stillfried B" 14C=27,965±260 BP(?) Maisierian

Fauna: *Lagopus* sp., *Nyctea scandiaca*, *Corvus corax*

Det.: Ballmann

Stored: Institut Royal des Sciences Naturelles (Bruxelles)

Notes: 14C=27,965±260 BP (occupation horizon), 30,780±400 BP (fossil soil).

BE 7 Marie-Jeanne (Namur)

Type: c

Sources: Ballmann 1973b, 1980a

Layer: 2

Date: LP "Interpléniglaciaire" Late MPal or EUP

Fauna: *Lagopus lagopus*, *Tetrao tetrix*, *Perdix perdix*, *Rallus aquaticus*?, *Eremophila alpestris*, *Anthus* sp., *Turdus* sp.

Layer: 3

Date: LP "Interpléniglaciaire" Mousterian

Fauna: *Anser* sp., *Tadorna tadorna*, *Clangula hyemalis*, *Mergus serrator*, *Falco tinnunculus*, *Lagopus lagopus*, *Tetrao tetrix*, *Perdix perdix*, *Rallus aquaticus*?, *Hirundo aff rustica*, *Corvus corax*, *Turdus* sp.

Layer: 4

Date: LP "Début Glaciaire-Pléniglaciaire A" Mousterian

Fauna: *Branta bernicla*, *Tadorna tadorna*, *Clangula hyemalis*, *Mergus serrator*, *Mergus merganser*, *Falco tinnunculus*, *Lagopus lagopus*, *Tetrao tetrix*, *Perdix perdix*, *Coturnix coturnix*, *Rallus aquaticus*?, *Vanellus vanellus*?, *Bubo bubo*, *Dendrocopos leucotos*?, *Hirundo aff rustica*, *Muscicapa cf. striata*, *Corvus monedula*, *Corvus corax*, *Carduelis* sp.

Layer: 5

Date: LP "Début Glaciaire-Pléniglaciaire A"

Fauna: *Tadorna tadorna*, *Mergus serrator*, *Lagopus lagopus*, *Tetrao tetrix*, *Perdix perdix*, *Coturnix coturnix*, *Pluvialis apricaria*, *Stercorarius parasiticus*, *Dendrocopos leucotos*?, *Eremophila alpestris*, cf. *Bombycilla* sp., cf. *Oenanthe* sp., *Corvus corax*

Layer: 6

Date: LP "Début Glaciaire-Pléniglaciaire A"

Fauna: *Branta bernicla*, *Eremophila alpestris*, cf. *Bombycilla* sp.

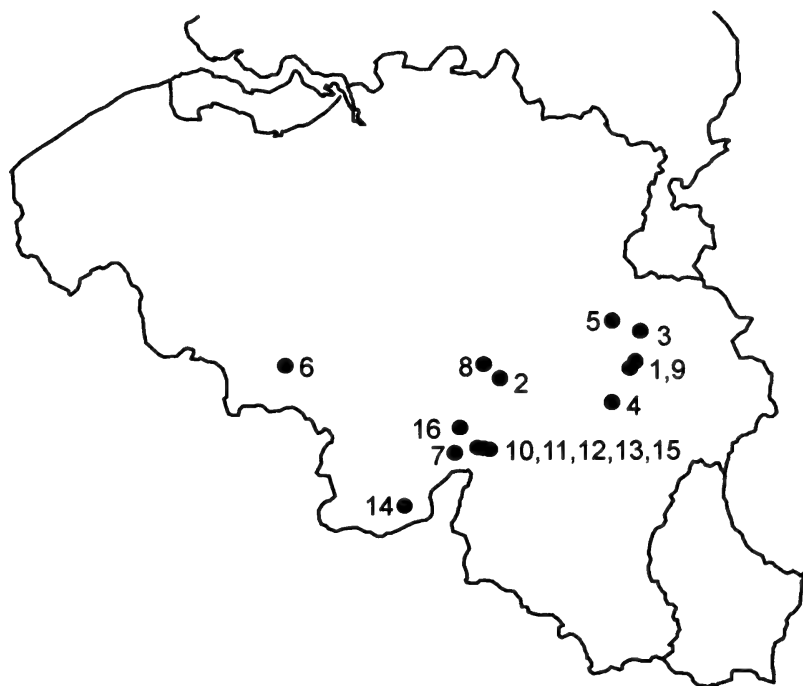
Det.: Ballmann

Stored: Institut Royal des Sciences Naturelles (Bruxelles)

BE 8 Princesse Pauline (Namur)

Type: c

Sources: Cordy 1974; Musil 1980b



BELGIUM (BE)

Date: LP Aurignacian

Fauna: *Lagopus lagopus*

Stored: Musees Royaux d'Art et d'Histoire, Bruxelles

BE 9 Remouchamps (Liège)

Alt.: 130

Type: c

Sources: Bouchud 1974; Dewez 1974; Lambrecht 1933

Layer: ?

Date: LP ? "Frühtardenoisien," probably Dryas 3

Fauna: *Lagopus mutus*

Layer: ?

Date: LP LG Dryas 3 Ahrensburgian 14C=10,380±170 BP

Fauna: *Lagopus lagopus*, *Asio otus*

Det.: Bouchud

Layer: B

Date: LP LG Dryas 3 Ahrensburgian

Fauna: *Lagopus* sp., *Tetrao* sp.

Layer: D

Date: LP LG Dryas 3 Ahrensburgian

Fauna: *Asio* sp.

BE 10 Trou Magrite (Namur)

Type: c

Sources: Dupont 1872; Lambrecht 1933; Wolf 1938–41

Date: LP Aurignacian

Fauna: *Anas* sp., *Tetrao tetrax*, *Tetrao urogallus*, *Lagopus lagopus*

Det.: Dupont

BE 11 Trou de Chaleux (Namur)

Type: c

Sources: Dupont 1872; Lambrecht 1933; Wolf 1938–41

Date: LP LG Magdalenian Bölling 14C=12,370–12,990 BP

Fauna: *Anas* sp., *Haliaeetus albicilla*, *Falco tinnunculus*, *Lagopus lagopus*, *Tetrao tetrax*,
Tetrao urogallus, *Bubo bubo*, *Turdus pilaris*, *Garrulus glandarius*, *Corvus corax*

Det.: Dupont

Notes: *Falco naumanni*, *Athene noctua* according to Lambrecht

BE 12 Trou de Frontal (Namur)

Type: c

Sources: Dupont 1872; Lambrecht 1933; Wolf 1938–41

Date: LP LG Magdalenian

Fauna: *Anser* sp., *Anas* sp., *Falco* sp., *Perdix perdix*, *Lagopus* sp., *Tetrao tetrax*, *Columba palumbus*, *Bubo bubo*, *Turdus philomelos*, *Turdus iliacus*, *Turdus pilaris*, *Turdus viscivorus*, *Pica pica*, *Garrulus glandarius*

Det.: Dupont

BE 13 Trou de la Naulette (Namur)

Type: c

Sources: Dupont 1872; Lambrecht 1933; Wolf 1938–41

Date: LP

Fauna: *Anas* sp., *Turdus pilaris*, *Corvus corone*

Det.: Dupont

Notes: Middle Palaeolithic layers present in cave

BE 14 Trou de l'Abîme (Namur)

Alt.: 197

Type: c

Sources: Maillieux 1908; Wolf 1938–41

Date: LP Mid-Würmian ?

Fauna: *Lagopus lagopus*, *Gallus* sp.

Notes: older than Late Glacial, according to mammal fauna, 14C=46,820±3,290 BP

BE 15 Trou des Nutons (Namur)

Type: c

Sources: Dupont 1872; Lambrecht 1933; Wolf 1938–41

Date: LP LG Magdalenian

Fauna: *Anser* sp., *Anas* sp., *Haliaeetus albicilla*, *Perdix perdix*, *Lagopus lagopus*, *Tetrao tetrix*, *Tetrao urogallus*, *Columba palumbus*, *Turdus pilaris*, *Corvus frugilegus*, *Pica pica*

Det.: Dupont

BE 16 Trou du Sureau (Namur)

Type: c

Sources: Dupont 1872; Lambrecht 1933; Musil 1980b; Nehring 1880; Wolf 1938–41

Date: LP LG Magdalenian

Fauna: *Anas* sp., *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Turdus pilaris*, *Turdus philomelos*, *Turdus iliacus*, *Turdus viscivorus*, *Garrulus glandarius*, *Pica pica*

Det.: Dupont

Notes: at least most of the birds found in layer "2"

BELORUSSIA

BR 1 Berdysh (Gomel)

Type: o

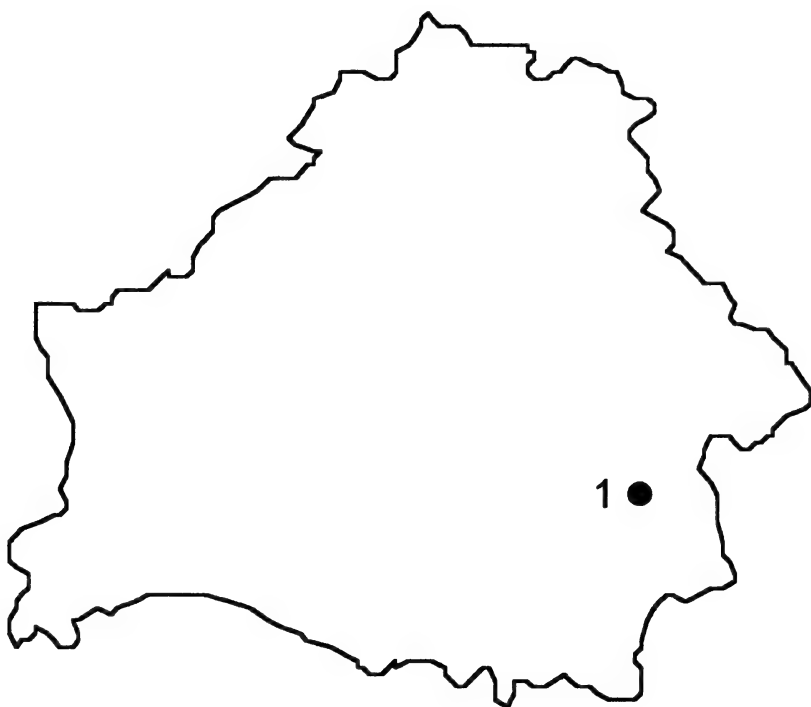
Sources: Burchak-Abramovich 1975; Soffer 1985

Date: LP "Aurignacian" 14C=15,100±250 BP

Fauna: *Bubo bubo*

Det.: Subareva

Notes: also known as Berdyzh; there is also a questionable 14C date of 23,430±180 BP



BELORUSSIA (BR)

BOSNIA-HERZEGOVINA

BH 1 Badanj

Type: c

Sources: Malez 1983a, 1983b, 1988b

Layer: c

Date: LP "Spät-Würm," probably LG

Fauna: *Anas platyrhynchos*, *Alectoris graeca*, *Perdix perdix*, *Columba livia*, *Pyrhacorax pyrrhacorax*, *Corvus monedula*, *Corvus frugilegus*, *Corvus corone*

Det.: Malez

BH 3 Gornja Bijambarska Pecina

Alt.: 973

Type: c

Sources: Malez 1970, 1973, 1983a, 1983b, 1986b, 1988b

Layer: c

Date: LP "Spät-Würm" Epigravettian

Fauna: *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Coturnix coturnix*, *Vanellus* cf. *vanellus*, *Columba livia*, *Coracias* cf. *garrulus*, *Galerida cristata*, *Hirundo rustica*, *Bombicilla* sp., *Turdus* cf. *pilaris*, *Lanius* sp., *Sturnus* cf. *vulgaris*, *Pica pica*, *Corvus monedula*, *Corvus corone*, *Fringilla* sp., *Emberiza* sp.

Layer: d

Date: LP "Würm III stadial" Epigravettian

Fauna: *Anser* sp., *Anas crecca*, *Aythya* cf. *ferina*, *Falco tinnunculus*, *Lagopus mutus*, *Lagopus* sp., *Perdix perdix*, *Rallus aquaticus*, *Scolopax* sp., *Columba livia*, *Tyto alba*, *Strix aluco*, *Asio* cf. *otus*, *Asio flammeus*, *Turdus merula*, *Sylvia* sp., *Parus major*, *Sitta europaea*, *Garrulus glandarius*

Det.: Malez

Notes: also known as Bijambarske pecina

BH 4 Marinova Pecina

Type: c

Sources: Lambrecht 1933; Malez 1983a,b, 1988b; Wolf 1938–41 (Fiala 1892)

Date: LP "Spät-Würm"

Fauna: *Tetrao tetrix*, *Perdix perdix*, *Corvus* sp.

BH 5 Megara

Alt.: 1,400

Type: c

Sources: Malez 1983a,b, 1988b

Layer: b

Date: LP "Spät-Würm"

Fauna: *Tetrao urogallus*

Det.: Malez

Notes: also known as Kuvija and Nilatova

BH 6 Zelena Pecina

Type: c

Sources: Malez 1973, 1983b, 1988b (Malez 1978)

Layer: g

Date: LP "Spät-Würm"

Fauna: *Tetrao tetrix*

Layer: i

Date: LP "Würm"

Fauna: *Lagopus mutus*, *Tetrao tetrix*, *Dendrocopos major*, *Oriolus oriolus*, *Pyrhacorax pyrrhacorax*

Det.: Malez

Layer: l

Date: LP "Würm"

Fauna: *Cygnus cygnus*, *Anas crecca*, *Falco* sp., *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Phasianus colchicus*, *Gallinago gallinago*, *Scolopax* cf. *rusticola*, *Sterna* cf. *hirundo*, *Columba* cf. *livia*, *Dendrocopos medius*, *Galerida cristata*, *Lanius* sp., *Bombicilla garrulus*, *Turdus merula*, *Turdus* sp., *Carduelis chloris*, *Passer* sp., *Garrulus glandarius*, *Pica pica*, *Corvus monedula*, *Corvus corax*

Layer: n

Date: LP "Würm"

Fauna: *Perdix perdix*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Columba cf. livia*, *Strix aluco*, *Bombycilla garrulus*, *Turdus* sp., *Carduelis chloris*, *Coccothraustes coccothraustes*, *Garrulus glandarius*, *Pyrhcorax pyrrhcorax*, *Corvus monedula*

Det.: Malez

Notes: Malez (1988b) also mentions *Hirundo rustica* and *Parus major* without any stratigraphic data



BOSNIA-HERZEGOVINA (BH)

BULGARIA

BU 1 Bacho Kiro

Type: c

Source: Kozłowski et al. 1982

Layer: 4

Date: LP Würm II pleniglacial?

Fauna: *Corvus corax*

Layer: 4a

Date: LP UP Würm II pleniglacial?

Fauna: *Alectoris graeca*

Layer: 4b

Date: LP UP end Krinides II interstadial

Fauna: *Pyrhacorax graculus*

Layer: 6a

Date: LP Aurignacian Krinides II interstadial

Fauna: cf. *Lullula arborea*, *Alauda arvensis*, *Pyrhacorax graculus*

Layer: 6b

Date: LP UP 14C=32,700±300 BP Krinides I interstadial

Fauna: *Pyrhacorax graculus*

Layer: 6c

Date: LP

Fauna: *Alectoris graeca*

Layer: 7

Date: LP Aurignacian 14C=29,150±950 BP, Krinides I interstadial ?

Fauna: *Alauda arvensis*, *Pyrhacorax graculus*

Layer: 8

Date: LP UP

Fauna: *Perdix perdix*

Layer: 9

Date: LP UP "Bachokirian", correlates with pollen zone P4 at Tenaghi Philippon ?

Fauna: *Corvus monedula*

Layer: 10

Date: LP

Fauna: cf. *Hirundo rupestris*

Layer: 11

Date: LP EUP "Bachokirian" 14C >43,000 BP, Heraklitsa interstadial or Kalabaki I interstadial ?

Fauna: *Aquila chrysaetos*, *Circus aeruginosus*, *Perdix perdix*, *Coturnix coturnix*, *Alectoris graeca*, *Porzana porzana*, *Bubo bubo*, *Pyrhacorax graculus*

Layer: 11a

Date: LP Mousterian, Heraklitsa interstadial?

Fauna: *Anas platyrhynchos*, cf. *Delichon urbica*, cf. *Anthus campestris*

Layer: 12

Date: LP Mousterian, cold period=IS 4?

Fauna: *Anas platyrhynchos*, *Coturnix coturnix*, *Alectoris graeca*, *Rallus aquaticus*, *Alauda arvensis*, cf. *Hirundo rupestris*, *Pyrhacorax pyrrhacorax*, *Pyrhacorax graculus*

Layer: 13

Date: LP Mousterian 14C>47,500 BP, Eleutheroupolis interstadial ?

Fauna: *Lagopus mutus*, *Perdix perdix*, *Alectoris graeca*, *Gallinula chloropus*, *Alauda arvensis*, cf. *Hirundo rupestris*, cf. *Delichon urbica*, cf. *Turdus philomelos*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Corvus monedula*, *Loxia curvirostra*

Notes: most of the fauna is from the cooling at the end of the interstadial.

Layer: 13h

Date: LP Mousterian, Elevationopolis interstadial ?

Fauna: *Gallinula chloropus*, *Pyrrhonorax graculus*, *Corvus monedula*

Layer: 14

Date: LP "Charentian", stadial before Elevationopolis interstadial ?

Fauna: *Pyrrhonorax graculus*

Det.: Bochenski

BU 2 Cave No. 16

Type: c

Sources: Boev 1992, 1993

Date: LP

Fauna: *Accipiter nisus*, *Falco* cf. *vespertinus*, *Coturnix coturnix*, *Perdix perdix*, *Rallus aquaticus*, *Crex crex*, *Porzana parva/pusilla*, *Apus melba*, *Apus apus*, *Alauda arvensis*, *Anthus trivialis*, *Turdus merula*, *Turdus philomelos*, *Turdus torquatus*, *Sitta* cf. *europaea*, *Lanius collurio*, *Garrulus glandarius*, *Pyrrhonorax graculus*, *Corvus monedula*, *Pyrrhula pyrrhula*, *Passer montanus*?, *Loxia curvirostra*, *Fringilla coelebs*

Det.: Boev

BU 3 Morovitsa Cave

Type: c

Sources: Boev 1992, 1993

Date: LP

Fauna: *Coturnix coturnix*, *Alectoris graeca*, *Alauda arvensis*, *Pyrrhonorax graculus*

Det.: Boev

BU 4 Temnata Cave

Type: c

Source: Boev 1994

Layer: 1a

Date: LP

Fauna: *Buteo* sp., Galliformes, *Lullula arborea*, *Riparia* cf. *riparia*, *Turdus viscivorus*, *Corvus monedula*

Layer: 3a

Date: LP 14C=13,600±200, 13,920±480 BP

Fauna: *Falco tinnunculus*, *Falco* cf. *subbuteo*, *Perdix perdix*, *Coturnix coturnix*, *Tetrao* sp., *Strix aluco*, *Asio otus*, *Aegolius* sp.?, *Apus apus*, *Dendrocopos minor*, *Turdus viscivorus*, *Pyrrhula pyrrhula*, *Sturnus vulgaris*, *Pyrrhonorax graculus*, *Corvus monedula*, *Corvus* sp.

Layer: 3c

Date: LP

Fauna: Anatidae, *Alauda* cf. *arvensis*, *Oenanthe oenanthe*, *Sturnus vulgaris*, *Corvus monedula*

Layer: 3d

Date: LP 14C=28,900±1,100, 29,700±1,600 BP

Fauna: *Aquila pomarina*, *Aegypius monachus*, *Circus cyaneus*, *Falco tinnunculus*, *Falco* sp., *Alectoris graeca*, *Alectoris* sp.?, *Perdix perdix*, *Streptopelia* aff. *turtur*, *Columba oenas*, *Bubo bubo*, *Alauda* cf. *arvensis*, *Pica pica*, *Nucifraga caryocatactes*, *Corvus monedula*

Layer: 3a/d

Date: LP

Fauna: *Turdus merula*

Layer: 3c/d

Date: LP

Fauna: *Falco* cf. *vespertinus*, *Crex crex*

Layer: 3g

Date: LP

Fauna: *Crex crex*, *Pica pica*

Layer: 3

Date: LP

Fauna: *Falco* sp., *Perdix perdix*, *Lanius* cf. *collurio*, *Corvus monedula*

Layer: 3/4

Date: LP 14C=31,900±1,600 BP (top of layer 4)

Fauna: *Aquila chrysaetos*, *Falco tinnunculus*, *Corvus monedula*

Det.: Boev

Stored: National Museum of Natural History, Sofia

Notes: also known as Temnata Doubka and Temnata Dupka

BU 5 Karlukovo 4

Alt.: 300

Type: c

Source: Mlíkovský in press

Det: LP

Fauna: *Turdus* sp., *Pyrrhocorax graculus*

Det: Mlíkovský

BU 6 Slivnitsa

Type: c

Sources: Boev 1995, 1996

Date: LPI/EP MN 18

Fauna: *Ciconia* sp., *Geronticus* sp., Ardeidae, *Aythya* sp., *Aquila* sp., *Falco* sp., Phasianidae n. g., *Lullula* sp., *Turdus* cf. *philomelos*, *Pyrrhocorax graculus*, *Pyrrhocorax* sp., *Corvus* cf. *monedula*, *Corvus* sp., *Corvus* cf. *praecorax*, *Pica* sp., *Coccothraustes* sp., *Emberiza* sp.

Det: Boev

Notes: also known as Slivnica



BULGARIA (BU)

CHINA

CI 1 Cave No. 1 Chen Chihli (Hebei)

Type: c

Sources: Lambrecht 1933; Lowe & Bate 1931

Fauna: *Falco* cf. *tinnunculus*

Det.: Bate

Stored: British Museum (Natural History) ?

CI 2 Chao Kon in Kung Hsien (Honan)

Source: Lambrecht 1933 (Andersson 1923)

Date: LP

Fauna: *Struthio anderssoni***CI 3 Chengchow (Honan)**

Source: Lambrecht 1933 (Andersson 1923)

Date: LP

Fauna: *Struthio anderssoni***CI 4 Ching Hsing coal mine in Ching Hsing Hsien (Hopei)**

Source: Lambrecht 1933 (Andersson 1923)

Date: LP

Fauna: *Struthio anderssoni*

CI 7 Choukoutien, Upper Cave (Hopei)

Alt.: 100

Type: c

Sources: Hou 1993; Rich et al. 1986; Shaw 1935 (Hou 1985)

Date: LP UP ca. 10–19 KA BC (14C) 18–23 KA BP (U/Th)

Fauna: *Struthio anderssoni*, *Ciconia ciconia*, *Accipiter* cf. *nisus*, *Accipiter virgatus*, *Accipiter gentilis*, *Buteo buteo*, *Buteo hemilasius*, *Aquila chrysaetos*, *Aquila rapax*, *Hieraaetus fasciatus*, *Haliaeetus albicilla*, *Aegypius monachus*, *Gypaetus barbatus*, *Falco cherrug*, *Falco subbuteo*, *Falco tinnunculus*, *Alectoris chukar*, *Coturnix coturnix*, *Bambusicola thoracica*, *Pucrasia macrolopha*, *Phasianus colchicus*, *Turnix tanki*, *Grus japonensis*, *Grus grus*, *Pterocles orientalis*, *Columba livia*, *Streptopelia orientalis*, *Bubo bubo*, *Upupa epops*, *Galerida cristata*, *Alauda arvensis*, *Hirundo rustica*, *Hirundo daurica*, *Luscinia cyane*, *Luscinia* sp., *Monticola* sp., *Turdus ruficollis*, *Lanius cristatus*, *Dicrurus macrocercus*, *Sturnus sturninus*, *Cyanopica cyanus*, *Urocissa erythroryncha*, *Pyrrhocorax pyrrhocorax*, *Corvus monedula*, *Corvus corone*, *Passer rutilus*, *Fringilla montifringilla*, *Carpodacus erythrinus*, *Emberiza pusilla*, *Emberiza chrysophrys*

Det.: Hou

Notes: site also known as Zhoukoudian

CI 8 Choukoutien, Locality 1 (Hopei)

Alt.: 100

Type: c

Sources: Hou 1982, 1993; Rich et al. 1986; Shaw 1935, 1937 (Hou 1985)

Date: MP ca. 200–600 KA BP (U/Th, TL, Fission-track, AAR)

Fauna: *Struthio* sp., *Accipiter* cf. *nisus*, *Falco chowi*, *Alectoris peii*, *Perdix dauurica*, *Coturnix coturnix*, *Bambusicola thoracica*, *Pucrasia macrolopha*, *Phasianus colchicus*, *Rallus aquaticus*, *Rallus* sp., *Syrhaptes paradoxus*, *Pterocles* sp., *Columba livia*, *Streptopelia chinensis*, *Asio flammeus*, *Otus bakkamoena*, *Apus apus*, *Picus canus*, *Dendrocopos major*, *Melanocorypha* sp., *Calandrella cinerea*, *Galerida cristata*, *Alauda arvensis*, *Eremophila alpestris*, *Riparia riparia*, *Hirundo rustica*, *Hirundo daurica*, *Motacilla flava*, *Anthus spinoletta*, *Rhyacornis fuliginosus*, *Hodgsonius phoenicuroides*, *Turdus ruficollis*, *Paradoxornis webbianus*, *Acrocephalus* sp., *Prinia polychroa*, *Parus major*, *Lanius cristatus*, *Dicrurus macrocercus*, *Sturnus cineraceus*, *Urocissa erythroryncha*, *Pyrrhocorax pyrrhocorax*, *Corvus monedula*, *Corvus torquatus*?, *Passer montanus*, *Passer rutilus*, *Fringilla montifringilla*, *Carpodacus roseus*, *Loxia* sp., *Coccothraustes coccothraustes*, *Emberiza leucocephalos*, *Emberiza spodocephala*, *Emberiza cia*, *Emberiza pusilla*, *Emberiza chrysophrys*

Det.: Hou

Notes: site also known as Zhoukoudian

CI 9 Choukoutien, Locality 2 (Hopei)

Alt.: 100

Type: c

Sources: Hou 1993; Rich et al. 1986 (Hou 1985)

Date: MP (EMP)

Fauna: *Aquila heliaca*

Det.: Hou

Notes: site also known as Zhoukoudian

CI 10 Choukoutien, Locality 3 (Hopei)

Alt.: 100

Type: c

Sources: Hou 1993; Rich et al. 1986; Shaw 1935 (Hou 1985)

Date: LP, Early LP

Fauna: *Anas* sp., *Aquila* sp., *Falco tinnunculus*, *Falco chowi*, *Alectoris chukar*, *Coturnix coturnix*, *Phasianus colchicus*, *Turnix tanki*, *Syrhaptes paradoxus*, *Columba livia*, *Streptopelia chinensis*, *Asio flammeus*, *Strix* sp., *Halcyon pileata*, *Dendrocopos leucotos*, *Calandrella* sp., *Galerida cristata*, *Alauda arvensis*, *Hirundo daurica*, *Phylloscopus* sp., *Lanius cristatus*, *Pyrhocorax pyrrhocorax*, *Corvus macrorhynchus*, *Corvus fangshannus*, *Acrocephalus arundinaceus*, *Carpodacus erythrinus*, *Coccothraustes coccothraustes*, *Emberiza leucocephala*, *Emberiza cioides*

Det.: Hou

Notes: site also known as Zhoukoudian

CI 11 Choukoutien, Locality 4 (Hopei)

Alt.: 100

Type: c

Sources: Hou 1982, 1993; Rich et al. 1986 (Hou 1985)

Date: MP ca. 135–175 KA BP (IS 6) “early Upper Pleistocene”

Fauna: *Struthio* sp., *Ciconia ciconia*, *Accipiter* cf. *nisus*, *Falco tinnunculus*, *Coturnix coturnix*, *Crossoptilon jiai*, *Phasianus colchicus*, *Columba livia*, *Eurystomus* cf. *orientalis*, *Galerida cristata*, *Alauda arvensis*, *Eremophila alpestris*, *Hirundo* sp., *Motacilla flava*, *Motacilla citreola*, *Copsychus saularis*, *Turdus naumanni*, *Garrulax davidi*, *Lanius* sp., *Sturnus cineraceus*, *Corvus torquatus*?, *Passer montanus*

Det.: Hou

Notes: site also known as Zhoukoudian

CI 12 Choukoutien, Locality 12 (Hopei)

Alt.: 100

Type: c

Sources: Hou 1982, 1993; Rich et al. 1986 (Hou 1985)

Date: EP ca. 800–1,000 KA BP?

Fauna: *Columba congi*, *Streptopelia* sp.

Det.: Hou

Notes: site also known as Zhoukoudian

CI 13 Choukoutien, Locality 13 (Hopei)

Alt.: 100

Type: c

Sources: Hou 1993; Rich et al. 1986 (Hou 1985)

Date: MP (LMP?)

Fauna: *Syrhaptes paradoxus*

Det.: Hou

Notes: site also known as Zhoukoudian; age of this site is disputed; some authorities regard it as older than Locality 1 on biostratigraphic criteria

CI 14 Choukoutien, Locality 15 (Hopei)

Alt.: 100

Type: c

Sources: Hou 1993; Rich et al. 1986 (Hou 1985)

Date: MP? "Early LP" or "Late MP"

Fauna: *Struthio anderssoni*, *Falco tinnunculus*, *Falco* sp., *Coturnix coturnix*, *Bambusicola thoracica*, *Phasianus colchicus*, *Porzana porzana*, *Glareola maldivarum*, *Numenius* sp., *Tringasp.*, *Actitis hypoleucos*, *Columba livia*, *Asio flammeus*, *Athene noctua*, *Apus apus*, *Upupa epops*, *Picus canus*, *Galerida cristata*, *Alauda arvensis*, *Eremophila alpestris*, *Hirundo rustica*, *Motacilla alba*, *Dicrurus macrocerus*, *Sturnus sturninus*, *Cyanopica cyanus*, *Pica pica*, *Pyrrhocorax pyrrhocorax*, *Corvus monedula*, *Corvus corone*, *Phoenicurus aureus*, *Monticola* sp., *Turdus hortulorum*, *Turdus ruficollis*, *Turdus naumanni*, *Turdus* sp., *Garrulax davidi*, *Parus major*, *Parus palustris*, *Passer montanus*, *Fringilla montifringilla*, *Coccothraustes coccothraustes*, *Emberiza spodocephala*, *Emberiza cioides*, *Emberiza rustica*, *Emberiza pusilla*

Det.: Hou

Notes: site also known as Zhoukoudian

CI 15 Choukoutien, Locality 18 (Hopei)

Alt.: 100

Type: c

Sources: Hou 1993; Rich et al. 1986; Shaw 1940 (Hou 1985)

Date: EP "Villafranchian"

Fauna: *Aquila* sp., *Alectoris chukar*, *Perdix dauurica*, *Perdix paleoperdix*, *Coturnix coturnix*, *Crossoptilon jiai*, *Phasianus colchicus*, *Hirundo rustica*, *Motacilla alba*, *Corvus frugilegus*, *Corvus monedula*

Det.: Shaw, Hou

Notes: site also known as Zhoukoudian and Huiyu

CI 16 Choukoutien, Locality 20 (Hopei)

Alt.: 100

Type: c

Sources: Hou 1982, 1993; Rich et al. 1986 (Hou 1985)

Date: MP?

Fauna: *Pleotis liui*

Det.: Hou

Notes: site also known as Zhoukoudian

CI 17 Dali (Shaanxi)

Sources: Day 1986; Rich et al. 1986

Date: MP Late MP ca. 130–250 KA BP

Fauna: *Struthio anderssoni*

CI 18 Dingjiabu (Hebei)

Sources: Jia & Wei 1980; Rich et al. 1986

Fauna: *Threskiornis* cf. *ethiopicus*

CI 19 Feng Ming P'o in Mien Chih Hsien (Honan)

Source: Lambrecht 1933 (Andersson 1923)

Date: LP

Fauna: *Struthio anderssoni*

CI 20 Gulongshan (Liaoning)

Type: c

Source: Hou 1992

Date: LP

Fauna: Threskiornithidae, *Anas* sp., *Falco* sp., *Bonasa daliannsis*, *Perdix* sp., *Coturnix coturnix*, *Alectoris chukar*, *Phasianus colchicus*, *Charadrius* sp., *Scolopax rusticola*, *Asio* sp., Picidae, *Motacilla alba*, *Anthus hodgsoni*, *Luscinia* sp., *Turdus* sp., *Corvus* sp.

Det.: Hou

CI 21 Han Wanh Cheng in Ho Yin Hsien (Honan)

Sources: Lambrecht 1933; Lowe 1931 (Andersson 1923)

Date: LP

Fauna: *Struthio anderssoni*

Notes: also known as Ho Yin Hsien

CI 22 Hexian (Anhui)

Source: Rich et al. 1986

Date: MP "slightly later than Zhoukoudian site 1" ca. 150–190 KA BP

Fauna: *Crossoptilon* sp.

Notes: also known as Taodian and Longtangdong Cave

CI 23 Honan/Chihli border (Honan/Chihli)

Type: o

Source: Lowe 1931

Fauna: *Struthio anderssoni*

Det.: Lowe

CI 24 Hong-Tcheng (Nei Mongol?)

Type: o

Source: Lowe 1931 (Grabau 1927)

Date: LP "Mousterian"

Fauna: *Struthio anderssoni*

Det.: Lowe

CI 25 Hsia Kuo Yü in Hsi an Honein (Honan)

Source: Lambrecht 1933 (Andersson 1923)

Date: LP

Fauna: *Struthio anderssoni***CI 26 Hsin-an-Hsien (Honan)**

Type: o

Source: Lowe 1931

Fauna: *Struthio anderssoni*

Det.: Lowe

CI 27 Hutouliang (Hebei)

Type: o

Source: Wu & Olsen 1985

Date: LP LG UP 14C = $11,000 \pm 210$ BPFauna: *Struthio* sp.**CI 28 Jing Niu Shan (Liaoning)**

Source: Hou 1989

Date: MP

Fauna: *Ciconia* sp., *Aythya* sp., *Aquila chrysaetos*, *Falco* sp., *Francolinus pintadeanus*, *Coturnix coturnix*, *Bambusicola* sp., *Phasianus* sp., *Phasianus colchicus*, *Scolopax rusticola*, *Tyto jinniushanensis*, *Asio* sp., *Parus* sp., *Podoces hendersoni*

Det.: Hou

Notes: also known as Jinniushan; approximately the same age as Choukoutien
Locality 1**CI 30 Kuo Yü Kou in Mien Chih Hsien (Honan)**

Source: Lambrecht 1933 (Andersson 1923)

Date: LP

Fauna: *Struthio anderssoni***CI 31 K'ihon Wei river (Honan)**

Source: Lambrecht 1933

Date: LP

Fauna: *Struthio anderssoni***CI 32 K'ou An in Chin-Yang Hsien (Hopeh)**

Source: Lambrecht 1933 (Andersson 1923)

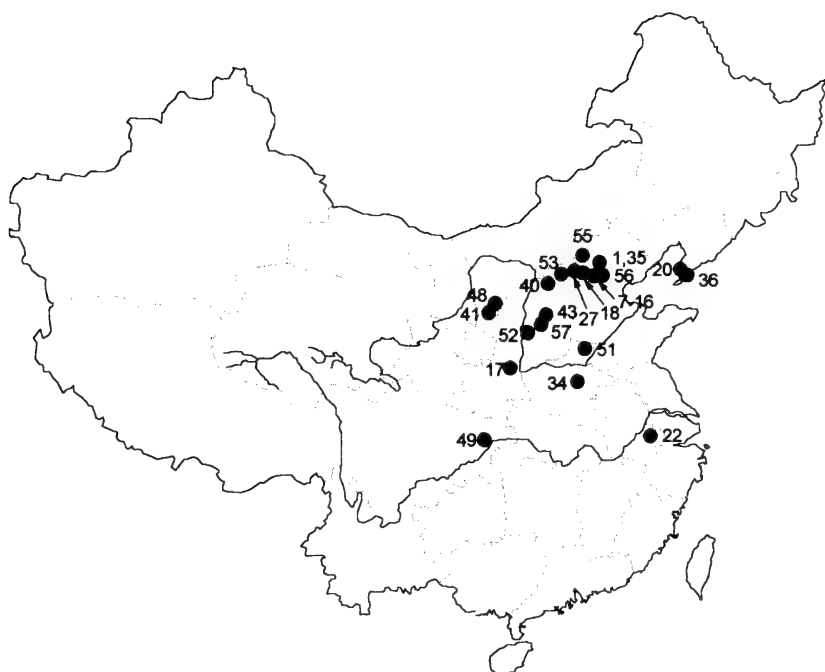
Date: LP

Fauna: *Struthio anderssoni***CI 33 Liang-Chia T'an in P'ing-Lu-Hsien (Shansi)**

Source: Lambrecht 1933 (Andersson 1923)

Date: LP

Fauna: *Struthio anderssoni*



Sites with only ostrich eggshells (2-4, 19, 21, 23-26, 28, 30-33, 38-39, 42, 44-46, 50, 54-55) not indicated

CHINA (CI)

CI 34 Ling-ching (Honan)

Source: Chang 1986

Date: LP UP

Fauna: *Struthio* sp.

CI 35 Locality 61, Chihli (Hebei)

Sources: Lambrecht 1933; Lowe & Bate 1931; Rich et al. 1986

Fauna: *Phasianus/Gallus* sp., cf. *Chrysolophus pictus*, *Columba* cf. *livia*, *Pyrrhocorax* sp.

Det.: Bate

Stored: British Museum (Natural History) ?

CI 36 Luda Shi (Liaoning)

Source: Rich et al. 1986

Fauna: *Anas* sp., *Falco* sp., *Phasianus* sp., *Perdix* sp., *Charadrius* sp.

Det.: Hou

CI 38 P'ing-Lu-Hsien (Shansi)

Type: o

Source: Lowe 1931

Fauna: *Struthio anderssoni*

Det.: Lowe

CI 39 Sha-Wa-Tsun (Shantung)

Source: Lambrecht 1933 (Andersson 1923)

Date: LP

Fauna: *Struthio anderssoni*

CI 40 Shiyu (Shanxi)

Type: o

Sources: Chang 1986; Chen & Olson 1990; Wu & Olsen 1985

Date: LP UP 14C=28,135–28,945 BP

Fauna: *Struthio* sp.

Notes: also known as Shih-yü and Locality 63661

CI 41 Sjara-osso-gol (Nei Mongol)

Type: o

Sources: Aigner 1978; Boule et al. 1928; Lambrecht 1933; Lowe & Bate 1931; Rich et al. 1986 (Eastman 1898)

Date: LP UP U/Th=37,000–50,000 BP, 14C=44,000–52,800 BP

Fauna: *Struthio* sp., *Podiceps auritus*, *Tadorna tadorna*, *Anas platyrhynchos*, *Buteo* cf. *rufiginus*, *Aegypius monachus*, *Perdix* cf. *perdix*, *Coturnix* sp., *Syrhaptes paradoxus*, cf. *Alaudidae* sp.

Notes: also known as Salawusu

CI 42 Ssu-shui Hsien (Honan)

Source: Lambrecht 1933 (Andersson 1923)

Date: LP

Fauna: *Struthio anderssoni*

CI 43 Taigu (Shanxi)

Source: Rich et al. 1986

Fauna: *Struthio* sp.

CI 44 Yang-T'ai-Chuang in Hu-T'ai-Hsien (Shansi)

Source: Lambrecht 1933 (Andersson 1923)

Date: LP

Fauna: *Struthio anderssoni*

CI 45 Ts'ai Chia Chuang in Hsi an Honein (Honan)

Source: Lambrecht 1933 (Andersson 1923)

Date: LP

Fauna: *Struthio anderssoni*

CI 46 Tung Huang Nü Yüan in Hsi An Honein (Honan)

Source: Lambrecht 1933 (Andersson 1923)

Date: LP

Fauna: *Struthio anderssoni*

CI 47 Unknown loess Locality (Honan)

Type: o

Source: Lowe & Bate 1931

Fauna: cf. *Anser cygnoides*

Det.: Bate

Notes: a complete egg found in loess

CI 48 Uxin Qi (Nei Mongol)

Source: Rich et al. 1986

Fauna: *Struthio* sp.

CI 49 Wan Xian (Sichuan)

Sources: Howard 1939; Rich et al. 1986; Wetmore 1934

Fauna: *Buteo hemilasius*, *Tragopan temminckii*, *Crossoptilon* sp., *Chrysolophus amherstiae*, *Phasianus* sp.

Notes: also known as Yen-Ching-Kou in Wanh sien

CI 50 Wu-An Hsien (Honan)

Sources: Lambrecht 1933; Lowe 1931 (Andersson 1923)

Date: LP

Fauna: *Struthio anderssoni*

Notes: also known as Wuan Riverbank

CI 51 Xiaonanhai (Honan)

Sources: Aigner 1978; Coles & Higg 1969; Wu & Olsen 1985 (Cheng 1966)

Date: LP 14C=24,100±500 BP (layer 6), 11,000±500 BP (layer 2-3)

Fauna: *Struthio anderssoni*

Notes: also known as Hsiao-nan-hai

CI 52 Xueguan (Shanxi)

Type: o

Sources: Olsen 1987; Wu & Olsen 1985

Date: LP 14C=13,550±150 BP "Late Paleolithic"

Fauna: *Struthio* sp.

CI 53 Xujia Yao (Shanxi)

Sources: Jia & Wei 1980; Rich et al. 1986

Date: LP ? ca 100,000 BP?

Fauna: Accipitridae sp.

Notes: also known as Xujiayao

CI 54 Yang Shao Tsun in Mien Chih Hsien (Honan)

Type: o

Sources: Lambrecht 1933; Lowe 1931 (Andersson 1923)

Date: LP

Fauna: *Struthio anderssoni*

Det.: Lowe

CI 55 Yao Kuan Chuang in Hsi-Ning (Hopeh)

Type: o

Sources: Lambrecht 1933; Lowe 1931 (Eastman 1898)

Fauna: *Struthio anderssoni*

Det.: Lowe

Notes: also known as Kalgan, Zhangjiakou, Yao-chin-Chuang

CI 56 Yunshui cave (Hopei)

Type: c

Sources: Huang & Hou 1984; Rich et al. 1986

Date: LP 14C=18,540±1,250 BP

Fauna: *Phasianus yanshansis*

Det.: Hou ?

CI 57 Yushe (Shanxi)

Source: Rich et al. 1986

Fauna: *Phasianus* sp.

CROATIA

CR 1 Bukovci pecina

Alt.: 864

Type: c

Sources: Lambrecht 1912a, 1933; Malez 1973, 1984, 1986a,b; Musil 1980b; Wolf 1938–41

Date: LP Aurignacian II?

Fauna: *Lagopus mutus*, *Lagopus* sp.

Notes: also known as Bukovac spilja, Bukovac pecina

CR 2 Drazica

Type: o

Sources: Lambrecht 1915a, 1933

Date: LP ?

Fauna: *Turdus viscivorus*

Det.: Lambrecht

Notes: also known as Lesce

CR 3 Druska Pec

Alt.: 335

Type: c

Sources: Malez 1965, 1973, 1984c, 1986b; Musil, 1980b

Date: LP later half "Würm III"

Fauna: *Lagopus mutus*, *Lagopus* sp.

Notes: on Ucka island

CR 4 Horvatovo Pecina

Type: c

Sources: Malez 1973, 1983b, 1984c, 1988b

Date: LP/Early Hol.

Fauna: *Turdus merula*, *Sturnus vulgaris*

Det.: Malez

Notes: near Kruscici; also known as Kruscica, Kruscice u lici, Horvatova spilja; early Holocene date according to Malez (1988b)

CR 5 Klek

Type: c

Sources: Malez 1988a

Date: LP

Fauna: *Buteo buteo*, *Accipiter gentilis*

Det.: Malez

CR 6 Krapina

Alt.: 127

Type: c

Sources: Malez 1973, 1984c; Malez & Malez 1988; Malez-Bacic 1975; Musil 1980b; Wolf 1938–41 (Malez 1970)

Layer: unstratified

Date: LP Würm I-II Mousterian

Fauna: *Anas* sp., *Bonasa bonasia*

Layer: 6

Date: LP Würm I Stadial

Fauna: *Aythya* cf. *fuligula*, *Haliaeetus albicilla*

Notes: Malez (1984c) reports *Aquila chrysaetos* instead of *Haliaeetus albicilla*

Layer: 7–8

Date: LP Würm I/II Interstadial, Mousterian U/Th = $69,7 \pm 0,5$, $89,8 \pm 1,4$ KA BP, ESR = 99 ± 5 – 132 ± 5 KA BP

Fauna: *Gyps fulvus*

Layer: 8

Date: LP Würm I/II Interstadial Mousterian ESR 109 ± 9 – 147 ± 14 KA BP

Fauna: *Strix aluco*, *Turdus viscivorus*, *Turdus merula*, *Garrulus glandarius*

Layer: 9

Date: LP Würm II Stadial ESR 87 ± 7 – 113 ± 10 KA BP

Fauna: *Haliaeetus albicilla*, *Perdix perdix*, *Bubo bubo*

Notes: Malez (1984c) reports *Aquila chrysaetos* rather than *Haliaeetus albicilla*

Det.: Lambrecht, Malez

Notes: also known as Husnjakovo Brdo

CR 7 Pecina Kamenika

Type: c

Sources: Malez 1973, 1983b, 1984a,b, 1988b

Layer: c

Date: LP

Fauna: *Tetrao tetrix*, *Tetrao urogallus*

Det.: Malez

Notes: also known as Kamenika; near Srdnjeg Lipovca; Malez (1988b) mentions only *Tetrao urogallus*

CR 8 Pecina u Brini

Alt.: 250

Type: c

Sources: Malez 1973, 1983b, 1984c; Malez-Bacic 1979a

Layer: d

Date: LP

Fauna: *Cygnus cygnus*, *Aythya ferina*, *Vanellus vanellus*, *Turdus merula*

Notes: "istocne Pecina"

Layer: d

Date: LP

Fauna: *Lagopus* sp., *Parus major*, *Coccothraustes coccothraustes*, *Pyrrhula pyrrhula*

Notes: "zapadne pecina"

Det.: Malez

Notes: *Corvus corone* also cited from this site, but with no indication from which cave

CR 9 Podumci

Sources: Malez 1973, 1984b, 1986b (Kormos 1931)

Date: MP Early MP, "Günz-Mindel"

Fauna: *Francolinus capeki*, *Columba livia*, *Corvus monedula*, *Corvus corone*, *Corvus corax*

Det.: Malez

Notes: Near Unesic

CR 10 Razvode

Sources: Malez 1973, 1984b, 1986b

Date: MP Early MP, "Günz-Mindel"

Fauna: *Francolinus capeki*, *Corvus corax*

Det.: Malez

Notes: also known as Razvodje, on Marjan peninsula near Split

CR 11 Romualdo

Alt.: 120

Type: c

Sources: Malez 1968, 1973, 1979, 1984b, 1986a,b, 1988a; Musil 1980b

Layer: C

Date: LP "Würm III" Gravettian

Fauna: *Accipiter nisus*, *Falco subbuteo*, *Falco peregrinus*, *Lagopus lagopus*, *Tetrao tetrix*,
Perdix perdix, *Rallus aquaticus*, *Asio otus*, *Turdus* sp., *Oriolus oriolus*, *Pyrhacorax*
pyrrhacorax, *Corvus frugilegus*, *Corvus corone*, *Corvus monedula*

Det: Malez

Notes: also known as Romualdovo spilja



Not exactly localized site: 7

CROATIA (CR)

CR 12 Sandalja I

Alt.: 72

Type: c

Sources: Malez 1973, 1975b, 1986a, 1988a, 1993; Malez & Malez-Bacic 1974a,b;
 Malez-Bacic 1979a

Layer: b (= 2)

Date: LP "Spät-Würm" Mesolithic-Gravettian

Fauna: *Accipiter cf. gentilis*, *Falco tinnunculus*, *Perdix perdix*, *Larus argentatus*, *Larus ridibundus*, *Pica pica*, *Corvus corone*

Layer: c (= 3)

Date: LP "Würm 3" Gravettian

Fauna: *Falco tinnunculus*, *Coturnix coturnix*, *Hirundo rustica*, *Lanius excubitor*, *Erithacus rubecula*, *Turdus merula*, *Fringilla coelebs*, *Garrulus glandarius*, *Pica pica*, *Pyrrhonorax graculus*, *Corvus monedula*

Layer: d (= 4)

Date: LP "Würm 3" Gravettian

Fauna: *Tachybaptus ruficollis*, *Anser fabalis*, *Anas penelope*, *Anas acuta*, *Anas crecca*, *Aythya ferina*, *Aegypius monachus*, *Accipiter nisus*, *Falco vespertinus*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Bonasa bonasia*, *Coturnix coturnix*, *Phasianus colchicus*, *Rallus aquaticus*, *Porzana sp.*, *Fulica atra*, *Tetrax tetrax*, *Scolopax rusticola*, *Limosa limosa*, *Larus argentatus*, *Larus minutus*, *Sterna hirundo*, *Columba livia*, *Asio otus*, *Asio flammeus*, *Dendrocopos minor*, *Galerida cristata*, *Hirundo rustica*, *Hirundo cf. daurica*, *Delichon urbica*, *Motacilla flava*, *Bombycilla garrulus*, *Erithacus rubecula*, *Sitta europaea*, *Emberiza citrinella*, *Fringilla coelebs*, *Coccothraustes coccothraustes*, *Pyrrhula pyrrhula*, *Sturnus vulgaris*, *Lanius collurio*, *Pica pica*, *Pyrrhonorax graculus*, *Corvus monedula*, *Corvus corone*, *Corvus corax*

Layer: f (= 6)

Date: EP/LPI Middle-Upper Villafranchian ca. 2 MA BP ?

Fauna: *Francolinus sp.*, *Columba sp.*, *Turdus sp.*

Det.: Malez

Stored: Inst. Quater. Paleo. Geol., Croatian Acad. Sci. Arts, Zagreb

CR 13 Sandalja II

Alt.: 72

Type: c

Sources: Malez 1973, 1986a, 1988a, 1991, 1993; Malez-Bacic 1979a

Layer: B

Date: LP "Spät-Würm" Mesolithic-Gravettian 14C=10,830±50 BP (Top), 12,320±100 BP (Middle)

Fauna: *Tachybaptus ruficollis*, *Ardea sp.*, *Anser anser*, *Anser fabalis*, *Anas platyrhynchos*, *Aythya fuligula*, *Aythya nyroca*, *Haliaeetus albicilla*, *Alectoris graeca*, *Lagopus lagopus*, *Phasianus colchicus*, *Porzana sp.*, *Otis tarda*, *Tetrax tetrax*, *Scolopax rusticola*, *Larus ridibundus*, *Bubo bubo*, *Athene noctua*, *Picus viridis*, *Dendrocopos medius*, *Hirundo rustica*, *Motacilla cinerea*, *Bombycilla garrulus*, *Sylvia borin*, *Parus palustris*, *Loxia curvirostra*

Layer: B/srednj

Date: LP "Spät-Würm" Mesolithic-Gravettian 14C=10,830±50 BP (Top), 12,320±100 BP (Middle)

Fauna: *Ciconia ciconia*, *Aythya ferina*, *Gyps fulvus*, *Aquila chrysaetos*, *Buteo buteo*, *Falco tinnunculus*, *Falco cherrug*, *Falco columbarius*, *Tetrao tetrix*, *Perdix perdix*, *Coturnix coturnix*, *Fulica atra*, *Gallinago gallinago*, *Larus argentatus*, *Picus canus*,

Troglodytes troglodytes, *Sitta europaea*, *Fringilla coelebs*, *Coccothraustes coccothraustes*, *Sturnus vulgaris*, *Pica pica*, *Pyrrhocorax graculus*, *Corvus corone*

Layer: B/gore

Date: LP "Spät-Würm" Mesolithic-Gravettian 14C=10,830±50 BP (Top), 12,320±100 BP (Middle)

Fauna: *Columba livia*, *Turdus merula*, *Sturnus vulgaris*, *Pica pica*

Layer: B/dolje

Date: LP "Spät-Würm" Mesolithic-Gravettian 14C=10,830±50 BP (Top), 12,320±100 BP (Middle)

Fauna: *Ciconia ciconia*, *Cygnus* sp., *Neophron percnopterus*, *Gyps fulvus*, *Aegypius monachus*, *Aquila chrysaetos*, *Falco tinnunculus*, *Lagopus mutus*, *Tetrao tetrix*, *Coturnix coturnix*, *Grus grus*, *Fulica atra*, *Sterna hirundo*, *Columba livia*, *Coracias garrulus*, *Galerida cristata*, *Troglodytes troglodytes*, *Turdus merula*, *Parus major*, *Sitta europaea*, *Coccothraustes coccothraustes*, *Pyrrhula pyrrhula*, *Sturnus vulgaris*, *Garrulus glandarius*, *Pica pica*, *Pyrrhocorax graculus*, *Corvus monedula*, *Corvus corone*, *Emberiza citrinella*

Layer: B/C

Date: LP "Würm"

Fauna: *Circus aeruginosus*, *Aquila chrysaetos*, *Falco subbuteo*, *Falco tinnunculus*, *Otis tarda*, *Tetrax tetrax*, *Turdus philomelos*, *Nucifraga caryocatactes*

Layer: C

Date: LP "Würm" Gravettian 14C=20,750±400, 21,740±450 BP (Bottom)

Fauna: *Ciconia ciconia*, *Anser* sp., *Anas crecca*, *Bonasa bonasia*, *Coturnix coturnix*, *Otis tarda*, *Tetrax tetrax*, *Vanellus vanellus*, *Sterna hirundo*, *Columba livia*, *Tyto alba*, *Philomachus pugnax*, *Athene noctua*, *Oriolus oriolus*, *Caprimulgus europaeus*, *Turdus torquatus*, *Strix aluco*, *Coracias garrulus*, *Dendrocopos medius*, *Hirundo rustica*, *Hirundo* cf. *daurica*, *Anthus trivialis*, *Turdus pilaris*, *Garrulus glandarius*

Layer: C/srednj

Date: LP "Würm" Gravettian 14C=20,750±400, 21,740±450 BP (Bottom)

Fauna: *Haliaeetus albicilla*, *Falco tinnunculus*, *Perdix perdix*, *Galerida cristata*, *Motacilla flava*, *Lanius excubitor*, *Troglodytes troglodytes*, *Fringilla coelebs*, *Coccothraustes coccothraustes*, *Corvus corone*

Layer: C/gore

Date: LP "Würm" Gravettian 14C=20,750±400, 21,740±450 BP (Bottom)

Fauna: *Cygnus cygnus*, *Anser anser*, *Buteo buteo*, *Tetrao tetrix*, *Sitta europaea*, *Fringilla coelebs*, *Coccothraustes coccothraustes*, *Pyrrhocorax graculus*, *Corvus monedula*, *Corvus corone*

Layer: C/dolje

Date: LP "Würm" Gravettian 14C=20,750±400, 21,740±450 BP (Bottom)

Fauna: *Cygnus cygnus*, *Neophron percnopterus*, *Buteo buteo*, *Falco tinnunculus*, *Falco subbuteo*, *Falco vespertinus*, *Lagopus lagopus*, *Tetrao tetrix*, *Perdix perdix*, *Rallus aquaticus*, *Fulica atra*, *Scolopax rusticola*, *Larus argentatus*, *Galerida cristata*, *Bubo bubo*, *Asio otus*, *Picus canus*, *Motacilla flava*, *Bombicilla garrulus*, *Troglodytes troglodytes*, *Turdus viscivorus*, *Turdus merula*, *Sitta europaea*, *Fringilla coelebs*, *Coccothraustes coccothraustes*, *Pyrrhula pyrrhula*, *Sturnus vulgaris*, *Pica pica*, *Pyrrhocorax graculus*, *Corvus monedula*, *Corvus corone*

Layer: C/D

Date: LP "Würm" Gravettian

Fauna: *Tetrax tetrax*

Layer: D

Date: LP "Würm" Gravettian

Fauna: *Anas strepera*, *Anas crecca*, *Accipiter nisus*, *Circus aeruginosus*, *Falco columbarius*, *Falco vespertinus*, *Falco tinnunculus*, *Falco subbuteo*, *Tetrao tetrix*, *Alectoris graeca*, *Coturnix coturnix*, *Gallinula chloropus*, *Otis tarda*, *Tetrax tetrax*, *Scolopax rusticola*, *Larus argentatus*, *Sterna hirundo*, *Columba livia*, *Tyto alba*, *Athene noctua*, *Coracias garrulus*, *Dendrocopos medius*, *Dendrocopos minor*, *Galerida cristata*, *Hirundo rustica*, *Motacilla flava*, *Bombycilla garrulus*, *Troglodytes troglodytes*, *Turdus viscivorus*, *Emberiza citrinella*, *Carduelis chloris*, *Coccothraustes coccothraustes*, *Pyrrhula pyrrhula*, *Sturnus vulgaris*, *Garrulus glandarius*, *Pica pica*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*, *Corvus monedula*, *Corvus corone*, *Corvus corax*

Layer: E

Date: LP "Würm" Aurignacian 14C=23,540±180 BP

Fauna: *Podiceps auritus*, *Falco subbuteo*, *Falco vespertinus*, *Falco tinnunculus*, *Tetrao tetrix*, *Tetrao urogallus*, *Coturnix coturnix*, *Grus grus*, *Rallus aquaticus*, *Otis tarda*, *Tetrax tetrax*, *Vanellus vanellus*, *Scolopax rusticola*, *Larus ridibundus*, *Columba livia*, *Tyto alba*, *Bubo bubo*, *Asio flammeus*, *Dendrocopos medius*, *Dendrocopos minor*, *Galerida cristata*, *Motacilla alba*, *Garrulus glandarius*, *Pica pica*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*, *Corvus monedula*

Notes: *Accipiter nisus* according to Malez-Bacic (1979a), deleted by Malez (1988a)

Layer: E/F

Date: LP "Würm"

Fauna: *Circus cyaneus*, *Falco subbuteo*, *Falco tinnunculus*, *Otis tarda*, *Tetrax tetrax*, *Oriolus oriolus*, *Nucifraga caryocatactes*

Layer: F

Date: LP "Würm" Aurignacian 14C=22,660±460, 25,340±170 BP

Fauna: *Cygnus cygnus*, *Falco tinnunculus*, *Tetrao urogallus*, *Bonasa bonasia*, *Coturnix coturnix*, *Grus grus*, *Columba livia*, *Dendrocopos medius*, *Lanius excubitor*, *Pyrrhula pyrrhula*, *Pica pica*, *Corvus corone*

Layer: G

Date: LP "Würm" Aurignacian 14C=27,800±800 BP

Fauna: *Buteo buteo*, *Circus aeruginosus*, *Falco tinnunculus*, *Otis tarda*, *Galerida cristata*, *Corvus monedula*

Layer: G/H

Date: LP "Würm" Aurignacian

Fauna: *Otis tarda*, *Nyctea scandiaca*

Layer: H

Date: LP "Würm" Aurignacian

Fauna: *Falco subbuteo*, *Falco tinnunculus*, *Otis tarda*, *Turdus torquatus*, *Loxia curvirostra*

Layer: I

Date: LP "Würm"

Fauna: *Otis tarda*

Det.: Malez; Malez-Bacic

CR 14 Tatinja draga

Sources: Malez 1973, 1984c

Date: MP Early MP, "Günz-Mindel"

Fauna: *Francolinus capeki*, *Columba livia*, *Sturnus vulgaris*, *Pica pica*, *Corvus corone*,
Corvus corax, *Fringilla coelebs*, *Pyrrhula pyrrhula*

Det.: Malez

Notes: near Karlobag

CR 15 Vela Spilja

Type: c

Sources: Malez 1973, 1984c, 1986b; Mirosaljevic 1968

Date: LP-Hol

Fauna: *Tetrao tetrix*, *Tetrao urogallus*, *Columba livia*, *Pica pica*, *Pyrrhocorax graculus*,
Corvus corax

Det.: Malez

Notes: *Tetrao tetrix* in layer M (LP); *Columba livia* in layer H (Holocene?)

CR 16 Velika Pecina

Alt.: 428

Type: c

Sources: Malez 1975a, 1984c, 1988a

Layer: c

Date: LP ?

Fauna: *Anser anser*, *Anas* cf. *crecca*, *Lagopus mutus*, *Tetrao tetrix*, *Bonasa bonasia*,
Scolopax rusticola, *Nyctea* sp., *Strix aluco*, *Dendrocopos medius*, *Dendrocopos major*,
Anthus trivialis, *Bombycilla garrulus*, *Troglodytes troglodytes*, *Erithacus rubecula*,
Turdus merula, *Parus montanus*, *Parus major*, *Sitta europaea*, *Emberiza citrinella*,
Emberiza cirius, *Fringilla coelebs*, *Carduelis* cf. *carduelis*, *Coccothraustes coc-*
cothraustes, *Pyrrhula pyrrhula*, *Passer* cf. *montanus*, *Garrulus glandarius*, *Pica pica*,
Pyrrhocorax cf. *pyrrhocorax*, *Corvus monedula*, *Corvus corax*

Layer: k

Date: LP "Würm I"

Fauna: *Lagopus lagopus*

Det.: Malez

Notes: 14C=5,550±40 BP for layer c may be too young considering the character of the fauna; layer e=26,450±300 BP; also known as Mackova-höhle

CR 17 Velika pec na Lipi

Type: c

Sources: Malez 1973, 1984a,b, 1993; Malez-Bacic 1975, 1979a

Layer: c

Date: LP/Holocene, LG-Earliest Holocene

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Columba livia*, *Picus canus*, *Turdus viscivorus*, *Sylvia borin*, *Coccothraustes coccothraustes*

Det: Malez

Notes: also known as Vela Pec

CR 18 Veternica

Alt.: 305

Type: c

Sources: Malez 1973, 1988a,b; Malez-Bacic 1975; Musil 1980b

Layer: d

Date: LP >13,600 BP, post-Aurignacian

Fauna: *Aquila chrysaetos*, *Falco* sp., *Tetrao tetrax*, *Tetrao urogallus*, *Lagopus* sp., *Perdix perdix*, *Garrulus glandarius*, *Turdus merula*

Layer: e

Date: LP Würm III, post-Aurignacian

Fauna: *Lagopus lagopus*

Det.: Malez, M

Notes: Malez (1984), Malez-Bacic (1975) & Malez (1988b) mention *Lagopus lagopus*, *Lagopus mutus*, *Lagopus* sp; no information on layers

CR 19 Vindija

Alt.: 273

Type: c

Sources: Malez 1961, 1973, 1988a, 1988b, 1991; Malez & Rukavina 1979; Musil 1980b

Layer: D/g ("D/upper")

Date: LP LG Mesolithic

Fauna: *Tetrao tetrax*, *Phasianus colchicus*, *Scolopax rusticola*

Layer: D

Date: LP LG UP "Dryas 1–Dryas 3" Gravettian-Mesolithic

Fauna: *Buteo buteo*, *Buteo* sp., *Accipiter gentilis*, *Lagopus lagopus*, *Lagopus* sp., *Tetrao tetrax*, *Tetrao urogallus*, *Phasianus colchicus*, *Gallus gallus*, *Turdus merula*, *Garrulus glandarius*, *Pica pica*, *Pyrrhocorax pyrrhocorax*, *Corvus monedula*

Layer: D + E

Date: LP Late W3–LG (Younger Aurignacian-Gravettian-Mesolithic)

Fauna: *Lagopus lagopus*, *Tetrao tetrax*, *Columba livia*

Layer: E

Date: LP UP Later part Würm 3 Younger Aurignacian

Fauna: *Anas platyrhynchos*, *Anas acuta*, *Lagopus lagopus*, *Tetrao tetrax*, *Phasianus colchicus*, *Gallus gallus*, *Asio otus*, *Nucifraga caryocatactes*

Layer: E+F

Date: LP UP Würm 3, Younger Aurignacian, 14C (F)=26,970 BP

Fauna: *Ardeola* sp., *Anas platyrhynchos*, *Anas querquedula*, *Anas crecca*, *Aythya fuligula*, *Aythya nyroca*, *Aythya ferina*, *Mergus merganser*, *Buteo buteo*, *Accipiter gentilis*, *Falco rusticolus*, *Falco subbuteo*, *Lagopus mutus*, *Lagopus lagopus*, *Tetrao urogallus*, *Tetrao tetrax*, *Alectoris graeca*, *Phasianus colchicus*, *Gallinula chloropus*, *Rallus aquaticus*, *Vanellus vanellus*, *Recurvirostra avosetta*, *Scolopax rusticola*,

Gallinago gallinago, *Larus minutus*, *Tyto alba*, *Bubo bubo*, *Nyctea scandiaca*, *Asio otus*, *Asio flammeus*, *Strix aluco*, *Dendrocopos major*, *Hirundo rustica*, *Lanius excubitor*, *Sylvia borin*, *Sturnus vulgaris*, *Nucifraga caryocatactes*, *Garrulus glandarius*, *Pica pica*, *Corvus corone*, *Corvus monedula*, *Corvus* cf. *monedula*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*

Layer: F

Date: LP UP Würm 3, 14C=26,970±630 BP

Fauna: *Anas platyrhynchos*, *Anas acuta*, *Anas* sp., *Aythya fuligula*, *Mergus* sp., *Lagopus lagopus*, *Lagopus* sp., *Tetrao urogallus*, *Tetrao tetrix*, *Asio otus*, *Strix aluco*, *Parus major*, *Corvus monedula*, *Pyrrhocorax pyrrhocorax*, *Scolopax rusticola*

Layer: Fd/d

Date: LP UP Early Würm 3

Fauna: *Buteo buteo*, *Accipiter gentilis*, *Lagopus mutus*, *Lagopus lagopus*, *Tetrao tetrix*, *Corvus corone*, *Pyrrhocorax pyrrhocorax*

Layer: F/s

Date: LP Upper part W3 (Younger Aurignacian)

Fauna: *Anas crecca*, *Lagopus mutus*, *Lagopus lagopus*, *Tetrao tetrix*

Layer: G/g

Date: LP Würm 2/3 (Aurignacian)

Fauna: *Anas platyrhynchos*, *Lagopus lagopus*, *Tetrao tetrix*, *Phasianus colchicus*, *Pica pica*, *Corvus monedula*, *Pyrrhocorax pyrrhocorax*

Layer: G1

Date: LP Würm 2/3 (Aurignacian)

Fauna: *Alectoris graeca*, *Pyrrhocorax pyrrhocorax*

Layer: G1/3

Date: LP Würm 2/3 14C=33,850±520 BP, Older Aurignacian

Fauna: *Falco subbuteo*, *Nucifraga caryocatactes*, *Pyrrhocorax pyrrhocorax*

Layer: G2

Date: LP Würm 2/3 Older Aurignacian

Fauna: *Anas* sp., *Accipiter gentilis*, *Lagopus mutus*, *Lagopus lagopus*, *Tetrao urogallus*, *Tetrao tetrix*, *Phasianus colchicus*, *Alectoris graeca*, *Gallinula chloropus*, *Rallus aquaticus*, *Vanellus vanellus*, *Scolopax rusticola*, *Asio otus*, *Asio flammeus*, *Strix aluco*, *Hirundo rustica*, *Bombicilla garrulus*, *Turdus viscivorus*, *Turdus merula*, *Oriolus oriolus*, *Garrulus glandarius*, *Pyrrhocorax pyrrhocorax*, *Nucifraga caryocatactes*, *Corvus monedula*, *Corvus corone*, *Emberiza citrinella*

Layer: G/s

Date: LP Würm 2–Würm 2/3 (Szeletian-Aurignacian)

Fauna: *Tetrao tetrix*, *Alectoris graeca*, *Phasianus colchicus*

Layer: G3

Date: LP end Würm 2 (Szeletian) 14C=32,900±800, AAR=42,400±4,300 BP

Fauna: *Anas platyrhynchos*, *Mergus* sp., *Lagopus lagopus*, *Tetrao urogallus*, *Phasianus colchicus*, *Bubo bubo*, *Oriolus oriolus*, *Pyrrhocorax pyrrhocorax*, *Aythya ferina*, *Scolopax rusticola*, *Corvus corone*

Layer: G/d

Date: LP Upper part W2 (Szeletian)

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Alectoris graeca*, *Rallus aquaticus*, *Vanellus vanellus*, *Turdus viscivorus*

Layer: G4

Date: LP Würm 2

Fauna: *Tetrao tetrix*

Layer: G

Date: LP Würm 2–Würm 2/3 Mousterian-Aurignacian

Fauna: *Ardea cinerea*, *Anas platyrhynchos*, *Anas crecca*, *Aythya ferina*, *Accipiter gentilis*, *Circus aeruginosus*, *Buteo buteo*, *Falco* cf. *subbuteo*, *Falco rusticolus*, *Lagopus mutus*, *Lagopus lagopus*, *Tetrao tetrix*, *Tetrao urogallus*, *Alectoris graeca*, *Phasianus colchicus*, *Gallinula chloropus*, *Scolopax rusticola*, *Limosa limosa*, *Larus ridibundus*, *Larus* sp., *Asio otus*, *Otus scops*, *Strix aluco*, *Sturnus vulgaris*, *Corvus frugilegus*, *Corvus corone*, *Corvus monedula*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Layer: H

Date: LP Early Würm 2, Mousterian

Fauna: *Anas crecca*, *Buteo buteo*, *Tetrao urogallus*, *Tetrao tetrix*, *Phasianus colchicus*, *Bubo bubo*

Layer: H+I

Date: LP Würm 1/2–Early Würm 2 (Mousterian)

Fauna: *Lagopus lagopus*

Layer: I

Date: LP Würm 1/2 (Mousterian)

Fauna: *Phasianus colchicus*

Layer: J

Date: LP Würm 1 (Mousterian)

Fauna: *Phasianus colchicus*

Layer: K

Date: LP R/W (=Eem) (Acheulean)

Fauna: *Tetrao tetrix*

Layer: Lg

Date: MP Late Riss (Acheulean)

Fauna: *Pyrhcorax pyrrhcorax*

Layer: Ls

Date: MP Middle Riss (Acheulean)

Fauna: *Corvus corax*

Layer: L3

Date: MP Riss 2 Acheulean

Fauna: *Accipiter* cf. *gentilis*

Layer: L5

Date: MP Riss 1 Acheulean

Fauna: *Accipiter gentilis*

Layer: Ld

Date: MP Early Riss (Acheulean)

Fauna: *Gallinula chloropus*

Layer: M

Date: MP Mindel/Riss

Fauna: *Tetrao urogallus*, *Gallinula chloropus*

Det: Malez

CYPRUS

CY 1 Akrotiri Aetokremnos

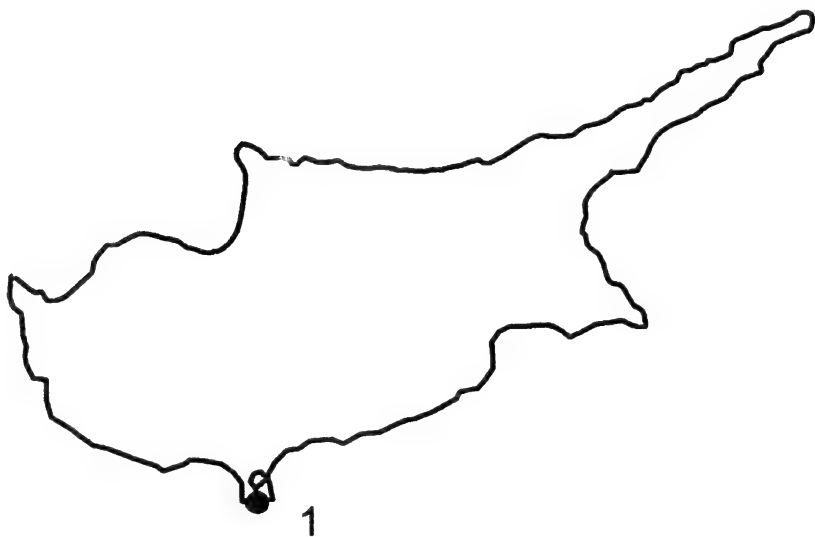
Type: c

Sources: Simmons 1991; Mourer-Chauviré *in litt.*

Date: LP LG 10,000–11,000 BP

Fauna: *Podiceps* sp., *Puffinus puffinus*, *Phalacrocorax aristotelis*, *Anser/Branta* sp.,
Anas crecca, *Circus* sp., *Otis tarda*, *Rallus aquaticus*, Columbidae sp.

Det.: Mourer-Chauviré



CYPRUS (CY)

CZECH REPUBLIC

CZ 1 Adlerova Jeskyne (Moravia)

Type: c

Sources: Musil 1958a,b

Date: LP LG Magdalenian

Fauna: *Tetrao tetrix*, *Turdus merula*, *Garrulus glandarius*

Notes: also known as Adler-Höhle.

CZ 2 Balcárka (Moravia)

Alt.: 460

Type: c

Sources: Capek 1911, Lambrecht 1933, Musil 1958a,b, Skutil & Stehlik 1939

Date: LP Magdalenian ?

Fauna: *Anser anser*, *Anser fabalis*, *Anser* sp., *Anas* sp., *Anas platyrhynchos*, *Anas crecca*, *Anas querquedula*, *Anas strepera*, *Aythya marila*, *Aythya ferina*, *Clangula hyemalis*, *Bucephala clangula*, *Aquila chrysaetos*, *Buteo lagopus*, *Circus cyaneus*, *Circus macrourus*, *Circus pygargus*, *Accipiter nisus*, *Accipiter gentilis*, *Falco columbarius*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Bonasa bonasia*, *Tetrao urogallus*, *Tetrao tetrix*, *Perdix perdix*, *Tetrax tetrax*, *Otis tarda*, *Grus grus*, *Rallus aquaticus*, *Porzana porzana*, *Crex crex*, *Gallinula chloropus*, *Fulica atra*, *Charadrius morinellus*, *Pluvialis squatarola*, *Vanellus vanellus*, *Philomachus pugnax*, *Tringa erythropus*, *Tringa ochropus*, *Tringa* sp., *Limosa limosa*, *Scolopax rusticola*, *Gallinago gallinago*, *Gallinago media*, *Lymnocyptes minimus*, *Larus* sp., *Cuculus canorus*, *Nyctea scandiaca*, *Bubo bubo*, *Asio flammeus*, *Athene noctua*, *Glaucidium passerinum*, *Apus apus*, *Picus canus*, *Dendrocopos major*, *Dendrocopos leucotos*, *Jynx torquilla*, *Galerida cristata*, *Alauda arvensis*, *Eremophila alpestris*, *Hirundo rustica*, *Delichon urbica*, *Bombicilla garrulus*, *Cinclus cinclus*, *Saxicola rubetra*, *Turdus iliacus*, *Turdus merula*, *Turdus pilaris*, *Turdus viscivorus*, *Turdus philomelos*, *Sitta europaea*, *Corvus corax*, *Corvus monedula*, *Nucifraga caryocatactes*, *Garrulus glandarius*, *Oriolus oriolus*, *Carduelis spinus*, *Loxia curvirostra*, *Fringilla coelebs*, *Miliaria calandra*, *Emberiza schoeniclus*

Det.: Capek

Date: LP LG Magdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Bonasa bonasia*, *Perdix perdix*, *Apus apus*, *Cuculus canorus*, Hirundinidae

Det.: Musil

Notes: also known as Balcarova Skála, Balcar-Fels, Balzarfelsgrotte

CZ 3 Bockova díra (Moravia)

Alt.: 343

Type: c

Source: Skutil & Stehlik 1939

Date: LP

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*

Notes: also known as Fürst Johann-Höhle, Grosse Lautscher Höhle

CZ 4 Bulovka (Bohemia)

Source: Lambrecht 1933 (Woldrich 1897)

Fauna: *Turdus iliacus*, *Turdus* sp.

Det.: Woldrich

CZ 5 Byci Skála (Moravia)

Alt.: 310

Type: c

Sources: Lambrecht 1933; Musil 1980b; Skutil & Stehlik 1939 (Kriz 1893)

Date: LP Magdalenian ?

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Notes: also known as Stierfels-Höhle

CZ 6 Certova Díra (Moravia)

Type: c

Sources: Capek 1911; Lambrecht 1933; Musil 1980b; Skutil & Stehlik 1939 (Woldrich 1880, 1881a, 1887)

Date: LP Mousterian-Magdalenian

Fauna: *Gavia stellata*, *Podiceps griseigena*, *Ardea cinerea*, *Anser anser*, *Anser albifrons*, *Anser erythropus*, *Branta bernicla*, *Anas platyrhynchos*, *Anas crecca*, *Anas penelope*, *Anas* sp., *Melanitta nigra*, *Mergus merganser*, *Mergus serrator*, *Mergus albellus*, *Aquila chrysaetos*, *Buteo lagopus*, *Circus aeruginosus*, *Accipiter nisus*, *Milvus migrans*, *Falco peregrinus*, *Falco rusticolus*, *Falco columbarius*, *Falco tinnunculus*, *Lagopus mutus*, *Lagopus lagopus*, *Tetrao tetrix*, *Tetrao urogallus*, *Perdix perdix*, *Coturnix coturnix*, *Tetrax tetrax*, *Otis tarda*, *Rallus aquaticus*, *Porzana porzana*, *Crex crex*, *Charadrius morinellus*, *Pluvialis apricaria*, *Pluvialis squatarola*, *Vanellus vanellus*, *Philomachus pugnax*, *Tringa erythropus*, *Tringa nebularia*, *Tringa ochropus*, *Tringa totanus*, *Tringa* sp., *Limosa limosa*, *Scolopax rusticola*, *Gallinago gallinago*, *Larus canus*, *Columba livia*, *Columba oenas*, *Columba palumbus*, *Cuculus canorus*, *Nyctea scandiaca*, *Bubo bubo*, *Asio flammeus*, *Asio otus*, *Aegolius funereus*, *Athene noctua*, *Glaucidium passerinum*, *Strix aluco*, *Strix uralensis*, *Picus viridis*, *Picus canus*, *Dendrocopos major*, *Alauda arvensis*, *Hirundo rustica*, *Turdus pilaris*, *Turdus viscivorus*, *Turdus philomelos*, *Turdus torquatus*, *Turdus merula*, *Nucifraga caryocatactes*, *Corvus corax*, *Corvus corone*, *Corvus monedula*, *Pica pica*, *Garrulus glandarius*, *Pyrrhocorax graculus*, *Coccothraustes coccothraustes*, *Loxia curvirostra*, *Plectrophenax nivalis*, *Miliaria calandra*, *Emberiza schoeniclus*

Det.: Capek; Woldrich

Notes: also known as Teufelsloch, Zwergenhöhle

CZ 7 Cesky Krumlov (Bohemia)

Type: c

Source: Musil 1980b (Liebus 1934)

Date: LP ?

Fauna: *Lagopus* sp.

CZ 8 Dekansky Vrch (Bohemia)

Alt.: 460

Type: o

Sources: Lambrecht 1933; Zelízko 1924

Date: LP ?

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Bonasa bonasia* ?, *Perdix perdix*, *Coturnix coturnix*, *Asio otus*, *Alauda arvensis*, *Anthus pratensis*, *Luscinia svecica* ?, *Sylvia atricapilla*?, *Phoenicurus phoenicurus*, *Passer domesticus* ?

Det.: Capek

CZ 9 Dolní Vestonice (Moravia)

Type: o

Sources: Grimm 1970; Skutil 1946b; Skutil & Stehlik 1939 (Absolon 1938)

Date: LP Gravettian 22–29,000 BP

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Nyctea scandiaca*, *Corvus corax*, *Corvus monedula*

Det.: Capek?

Notes: From 1924–26 excavations?

Date: LP Gravettian 22–29,000 BP

Fauna: *Cygnus cygnus*, *Lagopus lagopus*, *Lagopus mutus*, *Nyctea scandiaca*, *Corvus corax*

Notes: Seventeen 14C dates from 22,250±570 to 29,300+750–690 BP, average 26,200 BP

CZ 10 Holstejn (Moravia)

Type: c

Source: Musil 1966

Date: EP

Fauna: *Tetrao* cf. *urogallus*

Det.: Musil

CZ 11 Holstynská skála (Moravia)

Type: c

Source: Skutil & Stehlik 1939

Date: LP

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Anas querquedula*, *Aythya ferina*, *Mergus albellus*, *Crex crex*, *Lagopus mutus*, *Lagopus lagopus*, *Bonasa bonasia*, *Tetrao urogallus*, *Perdix perdix*, *Coturnix coturnix*, *Limosa limosa*, *Scolopax rusticola*, *Columba oenas*, *Columba palumbus*, *Streptopelia turtur*, *Cuculus canorus*, *Strix aluco*, *Apus apus*, *Dendrocopos leucotos*, *Picus canus*, *Hirundo rustica*, *Turdus philomelos*, *Corvus corax*, *Corvus monedula*, *Garrulus glandarius*, *Coccothraustes coccothraustes*

CZ 12 Holubice (Moravia)

Alt.: 290

Type: o

Sources: Capek 1925; Lambrecht 1933; Skutil & Stehlik 1939

Date: LP?

Fauna: *Ciconia ciconia*, *Anser anser*, *Anas crecca*, *Anas querquedula*, *Anas strepera*, *Circus macrourus*, *Lagopus lagopus*, *Tetrao tetrix*, *Coturnix coturnix*, *Otis tarda*, *Porzana porzana*, *Crex crex*, *Charadrius morinellus*, *Vanellus vanellus*, *Numenius arquata*, *Numenius phaeopus*, *Gallinago gallinago*, *Gallinago media*, *Nyctea scandiaca*, *Asio flammeus*, *Alauda arvensis*, *Motacilla alba*, *Saxicola rubetra*, *Turdus pilaris*, *Turdus philomelos*, *Turdus merula*, *Turdus iliacus*, *Locustella naevia*, *Phylloscopus trochilus*, *Phylloscopus collybita*, *Lanius collurio*, *Garrulus glandarius*, *Emberiza schoeniclus*

Det: Capek

Notes: Lambrecht (1933) also cites *Saxicola torquata* from this site

CZ 13 Horní Vestonice (Moravia)

Type: o

Source: Skutil & Stehlik 1939

Date: LP

Fauna: *Nyctea scandiaca*

Det.: Capek ?

CZ 14 Jedovnické propadání (Moravia)

Type: c

Source: Skutil & Stehlik 1939

Date: LP ?

Fauna: *Asio otus*, *Strix aluco*

Det.: Capek

CZ 15 Jeskyne CA. 16 (Moravia)

Type: c

Source: Musil 1980b

Layer: 2 Date: LP Pod-Hrademinterstadial

Fauna: *Tetrao urogallus*, *Tetrao tetrix*

Det.: Musil

Notes: also known as Cave Number 16

CZ 16 Jirická Skála (Bohemia)

Type: c

Sources: Lambrecht 1933; Zelízko 1925

Date: LP ?

Fauna: *Anas platyrhynchos*, *Falco tinnunculus*, *Accipiter nisus*, *Tetrao urogallus*, *Tetrao tetrix*, *Bonasa bonasia*, *Lagopus lagopus*, *Lagopus mutus*, *Scolopax rusticola*, *Vanellus vanellus*, *Columba palumbus*, *Athene noctua*, *Otus scops*, *Picus viridis*, *Hirundo rustica*, *Oenanthe oenanthe*, *Turdus pilaris*, *Parus ater*, *Corvus monedula*, *Corvus corone*, *Corvus corax*, *Fringilla coelebs*, *Fringilla montifringilla*, *Emberiza citrinella*, *Loxia curvirostra*,

Det.: Capek

Notes: also known as Malenice; *Anas platyrhynchos* only mentioned by Lambrecht (1933)

CZ 17 Katerinská (Moravia)

Type: c

Source: Skutil & Stehlik 1939

Date: LP

Fauna: *Lagopus mutus*, *Tetrao urogallus*, *Coturnix coturnix*, *Cinclus cinclus*, *Saxicola rubetra*, *Turdus pilaris*, *Turdus philomelos*, *Pyrrhula pyrrhula*, *Coccothraustes coccothraustes*

CZ 18 Kolibky (Moravia)

Type: c

Sources: Musil 1958a,b; Skutil & Stehlik 1939

Date: LP LG Magdalenian

Fauna: *Anas platyrhynchos*, *Tetrao urogallus*, *Lagopus* sp., *Bubo bubo*

Det.: Capek ?

Notes: also known as Kolibka-Grotte and Wiegenhöhle

CZ 19 Konieprusy (Bohemia)

Type: c

Sources: Jánossy 1972a, 1976c, 1977a, 1979

Date: MP "mittlere Biharium, Tarköer Stufe"

Fauna: *Falco tinnunculus atavus*, *Lagopus lagopus*, *Francoelinus capeki*, *Scolopax* sp.,
Strix intermedia, *Aegolius* cf. *funereus*

Det.: Jánossy

CZ 20 Konieprusy (Königshofner Steinbruch) (Bohemia)

Type: c

Sources: Lambrecht 1933; Schubert 1900

Date: LP ?

Fauna: *Tetrao urogallus* ?

Det.: Uhlig

CZ 22 Kravská díra (Moravia)

Type: c

Source: Skutil & Stehlik 1939

Date: LP

Fauna: *Strix aluco*, *Otus scops*, *Asio flammeus*

Det.: Capek ?

CZ 23 Kulna (Moravia)

Alt.: 470

Type: c

Sources: Lambrecht 1933; Musil 1958a,b, 1980b; Seidl 1988; Skutil & Stehlik 1939

Date: LP LG Magdalenian 14C=11,590±80 BP

Fauna: *Lagopus* cf. *lagopus*

Date: LP LG Magdalenian

Fauna: *Lagopus* sp.

Det.: Musil

Layer: unstratified

Date: age of deposits in Kulna cave ranges from late IS 6 to LG.

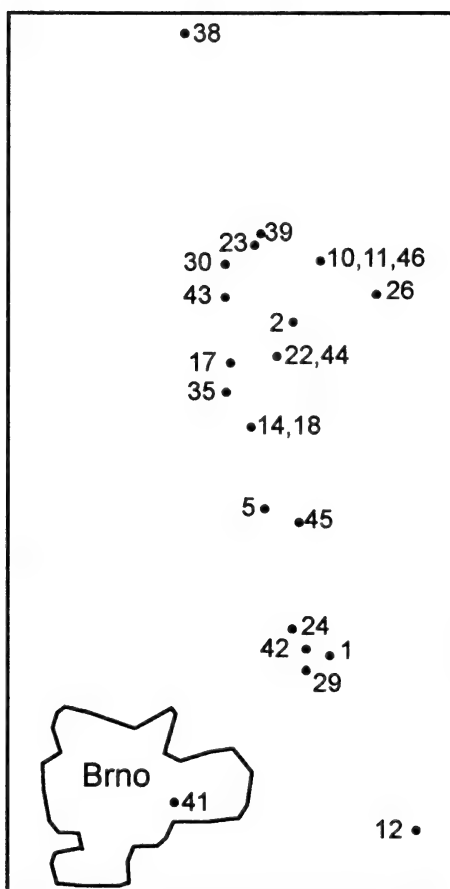
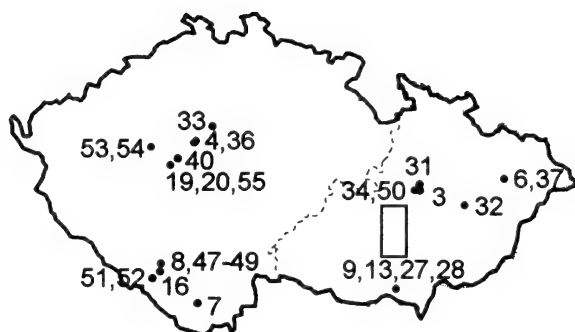
Fauna: *Cygnus cygnus*, *Anser anser*, *Anser erythropus*, *Crex crex*, *Lagopus mutus*, *Lagopus lagopus*, *Tetrao tetrax*, *Tetrao urogallus*, *Falco columbarius*, *Falco tinnunculus*, *Asio flammeus*, *Aegolius funereus*, *Motacilla alba*, *Hirundo rustica*, *Turdus pilaris*, *Saxicola rubetra*, *Corvus corax*, *Corvus monedula*, *Nucifraga caryocatactes*, *Garrulus glandarius*, *Pyrrhocorax pyrrhocorax*

Stored: Naturhistorisches Museum, Wien; Moravske Muzeum, Brno

CZ 24 Kulnicka (Moravia)

Type: c

Sources: Lambrecht 1933; Skutil & Stehlik 1939



Not exactly localized site in this area: 15

CZECH REPUBLIC (CZ)

Date: LP

Fauna: *Lagopus lagopus*, *Lagopus mutus*

CZ 26 Michalova jeskyne (Moravia)

Alt.: 469

Type: c

Sources: Skutil & Stehlik 1939

Date: LP ?

Fauna: *Anas strepera*, *Aythya ferina*, *Lagopus mutus*, *Lagopus lagopus*, *Tetrao tetrix*,
Tetrao urogallus, *Perdix perdix*, *Nyctea scandiaca*, *Corvus monedula*

Notes: also known as Michalova díra, Wolfshöhle

CZ 27 Millowitz (Moravia)

Source: Lambrecht 1933

Date: LP Aurignacian-Gravettian ? 14C=29,200±950 BP

Fauna: *Aquila* sp., *Lagopus mutus*

Notes: also known as Milovice

CZ 28 Pavlov (Moravia)

Type: o

Sources: Musil 1955, 1958b, 1959; Skutil & Stehlik 1939

Layer: Cast 1

Date: LP Early Würm 3, Gravettian, ca. 22–27,000 BP

Fauna: *Corvus corax*

Layer: Cast 2

Date: LP Early Würm 3, Gravettian, ca. 22–27,000 BP

Fauna: *Tetrao tetrix*, *Corvus corax*

Layer: Cast 3

Date: LP Early Würm 3, Gravettian, ca. 22–27,000 BP

Fauna: *Tetrao tetrix*, *Corvus corax*

Layer: Cast 6

Date: LP Early Würm 3, Gravettian, ca. 22–27,000 BP

Fauna: *Cygnus* sp., *Corvus corax*

Layer: ?

Date: LP Early Würm 3, Gravettian ca. 22–27,000 BP

Fauna: *Tetrao tetrix*, *Alectoris* sp., *Corvus corax*

Det.: Musil

Date: LP Early Würm 3, Gravettian ca. 22–27,000 BP

Fauna: *Nyctea scandiaca*, *Alauda arvensis*

Det.: Capek ?

Notes: three 14C dates 22,370–26,620 BP; also known as Pollauer Berge

CZ 29 Pekárna (Moravia)

Alt.: 361

Type: c

Sources: Lambrecht 1933; Musil 1958a, 1980b; Skutil & Stehlik 1939 (Kriz & Koudelka 1902)

Date: LP Dryas 1–Bölling

Fauna: *Anser anser*, *Anser erythropus*, *Lagopus mutus*, *Lagopus lagopus*, *Bonasa bonasia*, *Tetrao urogallus*, *Nyctea scandiaca*, *Corvus corax*

Date: LP LG Magdalenian, Dryas 1–Bölling

Fauna: *Lagopus mutus*, *Corvus corax*

Det.: Musil

Notes: also known as Backofen-höhle, Mokrauer höhle, Kostelik and Mokerska; Lambrecht (1933) also mentions *Tetrao tetrrix*

CZ 30 Pod Hradem (Moravia)

Type: c

Sources: Musil 1965a, 1980b; Skutil & Stehlik 1939 (Knies 1897, 1901)

Layer: 5–7

Date: LP Basis W II/III interstadial (14C=26,830±300 BP) 14C Date: at base of layer 6, Date: may be too young (5=“W3”, 6=“W2/3”, 7=“W2”)

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Layer: 8

Date: LP Pod-Hrademinterstadial (14C=28,100–33,300 BP); several 14C dates; perhaps Aurignacian (similar to Istalloskö)

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Gallinago media*

Layer: 9

Date: LP “Pod-Hrademinterstadial”

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Layer: 10

Date: LP “Pod-Hrademinterstadial”

Fauna: *Anas acuta*, *Tetrao tetrrix*, *Lagopus lagopus*, *Lagopus mutus*

Layer: 11

Date: LP “Pod-Hrademinterstadial”

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrrix*

Det.: Musil

Layer: 12

Date: LP “Pod-Hrademinterstadial”

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Layer: 13

Date: LP “Pod-Hrademinterstadial”

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Garrulus glandarius*

Layer: 14

Date: LP “Pod-Hrademinterstadial”

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Layer: 15

Date: LP “Pod-Hrademinterstadial” Szeletian ?

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Strix aluco*

Det.: Musil

Layer: 16–18

Date: LP "Pod Hradem interstadial" Szeletian ? (layer 16)

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Notes: Layer 17–18 warmer than 11–16

Det.: Musil

Layer: unstratified

Date: LP

Fauna: *Falco columbarius*, *Falco peregrinus*, *Falco rusticolus*, *Falco tinnunculus*, *Lagopus mutus*, *Lagopus lagopus*, *Vanellus vanellus*, *Scolopax rusticola*, *Nyctea scandiaca*, *Fringilla coelebs*, *Corvus corone*, *Corvus monedula*, *Nucifraga caryocatactes*

CZ 31 Podkova (Moravia)

Alt.: 244

Type: c

Source: Skutil & Stehlik 1939

Date: LP

Fauna: *Lagopus lagopus*, *Lagopus mutus*

CZ 32 Predmostí (Moravia)

Type: c

Sources: Capek 1911; Lambrecht 1933; Skutil & Stehlik 1939 (Wiegers 1912)

Date: LP Probably at least partly ca. 25–27,000 BP

Fauna: *Cygnus* sp., *Anser fabalis*?, *Anser anser*, *Branta* sp.?, *Anas* sp., *Aquila chrysaetos*, *Gyps fulvus*, *Lagopus mutus*, *Lagopus lagopus*, *Larus ridibundus*, *Larus argentatus*, *Larus* sp., *Nyctea scandiaca*, *Turdus pilaris*, *Corvus corax*

Det.: Capek

Notes: also known as Predmost; complex stratigraphy; main find level Gravettian but also Aurignacian, Mousterian and Acheulean (?); the oldest deposits are of IS 6 age

CZ 33 Prezletice (Bohemia)

Type: o

Source: Jánossy 1983a

Date: MP Early MP "younger Cromerian" ca. 590–660 KA BP, MNQ 21

Fauna: *Podiceps* cf. *cristatus*, *Podiceps* aff *grisegena*, *Podiceps* cf. *nigricollis*, *Phalacrocorax* cf. *carbo*, *Egretta* cf. *garzetta*, *Platalea* cf. *leucorodia*, *Cygnus* aff *cygnus*, *Anser subanser*, *Tadorna* sp., *Anas* sp., *Aythya* cf. *fuligula*, *Aythya* cf. *nyroca*, *Aythya* cf. *ferina*, *Bucephala* cf. *clangula*, *Oxyura* aff *leucocephala*, *Haliaeetus angustipes*, *Falco tinnunculus atavus*, *Fulica* aff *atra*, *Gallinula* aff *chloropus*, *Limosa* aff *limosa*, *Porzana* cf. *parva*, *Gallinago* cf. *gallinago*, *Phalaropus* aff *fulicarius*, *Larus* cf. *ridibundus*, *Sturnus* cf. *vulgaris*

Det.: Jánossy

CZ 34 Pruchovice I (Moravia)

Alt.: 535

Type: c

Sources: Capek 1911; Knies 1905; Lambrecht 1933; Skutil & Stehlik 1939; Skutil 1946a

Date: LP Magdalenian

Fauna: *Anser erythropus*, *Anser anser*, *Anas platyrhynchos*, *Anas crecca*, *Perdix perdix*, *Tetrao tetrix*, *Tetrao urogallus*, *Lagopus mutus*, *Lagopus lagopus*, *Crex crex*, *Vanel-lus vanellus*?, *Tringa ochropus*, *Syrhaptes paradoxus*, *Columba* sp., *Columba palum-bus*, *Asio flammeus*, *Turdus pilaris*, *Pica pica*

Det.: Capek

Notes: also known as Sanova dira and Ludmirau

CZ 35 Rytířská u Macochy (Moravia)

Alt.: 386

Type: c

Sources: Grimm 1970; Skutil & Stehlik 1939 (Valoch 1965)

Date: LP Szeletian-Magdalenian ?

Fauna: *Strix aluco*, *Corvus corax*

Det.: Capek ?

Notes: *Corvus corax* according to Grimm/Valoch

CZ 36 Sankt Prokop-Höhle (Bohemia)

Alt.: 292

Type: c

Source: Musil 1980b (Woldrich 1889)

Date: LP

Fauna: *Tetrao urogallus*

Notes: also known as Prokopi-Höhle

CZ 37 Sipka (Moravia)

Type: c

Sources: Capek 1911; Lambrecht 1933; Musil 1965b, 1980b; Skutil & Stehlik 1939

Layer: 14 (I)

Date: LP LG Magdalenian ?, Bölling ?

Fauna: *Anser* sp., *Aquila chrysaetos*, *Tetrao urogallus*

Notes: probably mixed fauna (WII/III-Holocene ?)

Layer: 12 (II)

Date: LP Würm II/III

Fauna: *Aquila chrysaetos*, *Falco peregrinus*, *Falco rusticolus*, *Tetrao urogallus*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Corvus corax*

Notes: Probably mixed fauna (WI/II-WII/III ?)

Layer: 1–5 (IV)

Date: LP (R/W-WI or W I-II)

Fauna: *Aquila chrysaetos*

Layer: unstratified

Date: LP Eem-Magdalenian

Fauna: *Anas crecca*, *Anas querquedula*, *Anas platyrhynchos*, *Anas* sp., *Mergus albellus*, *Aquila chrysaetos*, *Falco tinnunculus*, *Falco peregrinus*, *Falco rusticolus*, *Lagopus*

mutus, *Lagopus lagopus*, *Tetrao tetrix*, *Tetrao urogallus*, *Perdix perdix*, *Porzana porzana*, *Crex crex*, *Vanellus vanellus*, *Pluvialis apricaria*, *Tringa ochropus*, *Tringa nebularia*, *Tringa totanus*, *Scolopax rusticola*, *Gallinago gallinago*, *Nyctea scandiaca*, *Asio flammeus*, *Asio otus*, *Glaucidium passerinum*, *Dendrocopos leucotos*, *Turdus pilaris*, *Turdus viscivorus*, *Turdus philomelos*, *Saxicola rubetra*, *Pica pica*, *Corvus corax*, *Corvus corone*, *Corvus monedula*, *Garrulus glandarius*

Det.: Capek

CZ 38 Sklep (Moravia)

Type: c

Sources: Musil 1980b; Skutil & Stehlik 1939

Date: LP ?

Fauna: *Lagopus mutus*, *Lagopus* sp., *Strix aluco*

Det.: Capek

CZ 39 Sosůvka (Moravia)

Alt.: 472

Type: c

Sources: Lambrecht 1933; Skutil & Stehlik 1939 (Maska 1891)

Date: LP

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Nyctea scandiaca*

Det.: Capek ?

Notes: also known as Sosuvská, Schoschuwka-Höhle

CZ 40 Srbská Sluj (Bohemia)

Type: c

Sources: Lambrecht 1933; Musil 1980b

Layer: 3

Date: LP

Fauna: *Aquila* sp., *Tetrao urogallus*, *Alectoris graeca*

Det.: Woldrich ?

Notes: also known as St Ivanshöhle

CZ 41 Stránská Skála (Moravia)

Alt.: 310

Type: c

Sources: Capek 1925; Jánossy 1972a; Lambrecht 1933; Mlíkovský in press; Musil 1965c, 1968; Skutil & Stehlik 1939

Layer: "Capek 1–3" (Fissure 1–3)

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Anas* cf. *querquedula*, *Mergus connectens*, *Falco* aff. *cherrug*, *Lagopus lagopus*, *Tetrao praeurogallus*, *Perdix* aff. *perdix*, *Vanellus* cf. *vanellus*, *Strix intermedia*, *Apus* aff. *apus*, *Corvus* cf. *monedula*, *Pyrrhocorax* aff. *graculus*, *Carduelis* aff. *carduelis*

Notes: Musil (1968) gives a slightly different faunal list.

Layer: "Capek 4a" (Fissure 4a)

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Lagopus lagopus*, *Tetrao* cf. *partium*, *Crex* cf. *crex*, *Corvus* cf. *monedula*, *Pyrhcorax* aff *graculus*, cf. *Prunella collaris*

Notes: Musil (1968) gives a slightly different faunal list.

Layer: "Capek 4c" (Fissure 4c)

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Anas* cf. *querquedula*, cf. *Anas clypeata*, cf. *Aythya nyroca*, *Falco tinnunculus atavus*, *Lagopus lagopus*, *Tetrao* cf. *partium*, *Tetrao praeurogallus*, *Apus* aff *apus*, *Corvus* cf. *monedula*, *Sturnus* cf. *vulgaris*

Notes: Musil (1968) gives a slightly different faunal list

Layer: "Capek 5a oben"

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Podiceps* aff *griseogenae*, *Anas* cf. *platyrhynchos*, *Anas* cf. *querquedula*, *Anas* cf. *penelope*, *Anas* cf. *acuta*, cf. *Anas clypeata*, *Aythya* cf. *fuligula*, *Falco tinnunculus atavus*, *Lagopus lagopus*, *Tetrao* cf. *partium*, *Tetrao praeurogallus*, *Perdix* aff *perdix*, *Coturnix* cf. *coturnix*, *Porzana* cf. *porzana*, *Otis kalmani*, *Gallinago* cf. *gallinago*, *Limosa* aff *limosa*, *Strix* aff *nebulosa*, *Asio* aff *flammeus*, *Apus* aff *apus*, *Dendrocyopos* cf. *major*, cf. *Prunella collaris*, *Turdus* cf. *viscivorus*, *Corvus* cf. *corax*, *Corvus corone*, *Corvus* cf. *monedula*, *Garrulus* aff *glandarius*, *Pyrhcorax* aff *graculus*

Notes: Musil (1968) gives a slightly different faunal list

Layer: "Capek 5a unten"

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Anas* cf. *platyrhynchos*, *Anas* cf. *querquedula*, *Bucephala angustipes*, *Accipiter* cf. *nissus*, *Lagopus lagopus*, *Tetrao* cf. *partium*, *Tetrao praeurogallus*, *Perdix* aff *perdix*, *Coturnix* cf. *coturnix*, *Otis kalmani*, *Vanellus* cf. *vanellus*, *Charadrius* aff *morinellus*, aff *Pluvialis squatarola*, *Gallinago* cf. *media*, *Scolopax* cf. *rusticola*, *Limosa* aff *limosa*, *Tringa* aff *ochropus*, *Tringa* aff *totanus*, *Philomachus* aff *pugnax*?, aff *Chlidonias niger*, *Strix intermedia*, *Strix* aff *nebulosa*, *Asio* aff *flammeus*, *Turdus* cf. *pilularis*, *Pyrhcorax* aff *graculus*, cf. *Loxia curvirostra*, *Emberiza* cf. *citrinella*

Notes: Musil (1968) gives a slightly different faunal list

Layer: "Capek 5a ober der Schicht mit Desmana"

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Falco tinnunculus atavus*, *Tetrao* cf. *partium*, *Corvus corone*

Notes: Musil (1968) gives a slightly different faunal list

Layer: "Capek 5b"

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Anas* cf. *platyrhynchos*, *Anas* cf. *querquedula*, *Falco tinnunculus atavus*, *Lagopus lagopus*

Notes: Musil (1968) gives a slightly different faunal list

Layer: "Capek 7"

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Asio* aff *flammeus*

Layer: "Capek 8"

Date: MP MNQ 22 "Upper Biharian"

Fauna: *Falco tinnunculus atavus*, *Perdix* aff *perdix*

Layer: "Capek 9a-höhle"

Date: MP/LP (probably mixed material)

Fauna: *Tadorna* sp., *Anas* cf. *platyrhynchos*, *Anas* cf. *querquedula*, *Anas* cf. *strepera*, cf. *Aythya nyroca*, *Pernis* cf. *apivorus*, *Haliaeetus* aff *albicilla*, *Falco* cf. *vespertinus*, *Falco tinnunculus atavus*, *Falco* aff *cherrug*, *Lagopus lagopus*, *Tetrao* cf. *partium*, *Tetrao praeurogallus*, *Perdix* aff *perdix*, *Coturnix* cf. *coturnix*, *Crex* cf. *crex*, *Vanellus* cf. *vanellus*, *Scolopax* cf. *rusticola*, *Tringa* aff *erythropus*, *Calidris* aff *alpina*, *Larus* aff *canus*, *Columba* aff *palumbus*, *Cuculus* aff *canorus*, *Surnia capeki*, *Aegolius* aff *funereus*, *Caprimulgus capeki*, *Apus* aff *apus*, *Apus submelba*, *Picus* cf. *canus*, *Dendrocopos* cf. *major*, *Alauda* cf. *arvensis*, *Anthus* aff *trivialis*, *Hirundo* cf. *rustica*, *Turdus* cf. *viscivorus*, *Luscinia* cf. *svecica*, *Oenanthe* aff *oenanthe*, *Turdus* cf. *pilaris*, *Turdus* cf. *merula*, *Parus* cf. *caeruleus*, *Sitta* cf. *europaea*, *Sturnus* cf. *vulgaris*, *Corvus* cf. *corax*, *Corvus corone*, *Corvus* cf. *monedula*, *Coccothraustes* cf. *coccothraustes*, *Carduelis* aff *carduelis*, *Pyrrhula* aff *pyrrhula*, *Emberiza* cf. *citrinella*

Notes: Musil (1968) gives a slightly different faunal list

Layer: "Capek 9b"

Date: LP ?

Fauna: *Anas* cf. *penelope*, *Falco tinnunculus atavus*, *Tetrao* cf. *partium*, *Perdix* aff *perdix*, *Coturnix* cf. *coturnix*, *Dendrocopos* cf. *major*, *Alauda* cf. *arvensis*, *Turdus* cf. *pilaris*, *Parus* cf. *major*, *Sitta* cf. *europaea*, *Corvus* cf. *monedula*

Notes: Musil (1968) gives a slightly different faunal list

Layer: "Absolon, II Höhle"

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Tadorna* sp., *Anas* cf. *querquedula*, *Anas* cf. *strepera*, cf. *Anas clypeata*, *Mergus connectens*, *Accipiter* cf. *gentilis*, *Falco* cf. *vespertinus*, *Falco tinnunculus atavus*, *Falco* aff *subbuteo*?, *Falco* aff *rusticolus*, *Lagopus lagopus*, *Tetrao* cf. *partium*, *Perdix* aff *perdix*, *Francolinus capeki*, *Charadrius* aff *morinellus*, *Gallinago* cf. *media*, *Gallinago* cf. *gallinago*, *Limosa* aff *limosa*, *Larus* cf. *ridibundus*, *Columba* aff *palustris*, *Strix intermedia*, *Strix* aff *nebulosa*, *Glaucidium* aff *passerinum*, *Apus* aff *apus*, *Corvus corone*, *Corvus* cf. *monedula*, *Garrulus* aff *glandarius*, *Pyrrhocorax* aff *graculus*, *Pica pica major*

Layer: "Sammlung Knies"

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Mergus connectens*

Layer: "Sammlung Musil, Nová Velká jeskyne"

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Anser* aff *anser*, *Tetrao praeurogallus*, *Perdix* aff *perdix*, *Turdus* cf. *viscivorus*, *Corvus* cf. *monedula*

Layer: unstratified, "ohne Fundstelle"

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Anser* aff *albifrons*, *Tadorna* sp., *Anas* cf. *platyrhynchos*, *Mergus connectens*, *Aquila* aff *rapax*, *Falco* cf. *vespertinus*, *Falco tinnunculus atavus*, *Lagopus lagopus*, *Tetrao* cf. *partium*, *Perdix* aff *perdix*, *Francolinus capeki*, *Coturnix* cf. *coturnix*, aff *Pluvialis squatarola*, *Scolopax* cf. *rusticola*, aff *Sterna hirundo*, *Columba* aff *palumbus*, *Upupa* sp., *Delichon* cf. *urbica*, *Oenanthe* aff *oenanthe*, *Corvus* cf. *corax*, *Corvus corone*, *Corvus* cf. *monedula*

Det.: Jánossy

Layer: M. F. 3

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Pluvialis squatarola*, *Limosa* spp., *Apus apus*, *Motacilla* sp., *Corvus monedula*

Layer: M. F. 4

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Anas strepera*, *Anas querquedula*, *Anas clypeata*, *Falco tinnunculus*, *Falco peregrinus*, *Tetrao tetrix*, *Coturnix coturnix*, *Fulica atra*, *Vanellus vanellus*, *Philomachus pugnax*, *Gallinago gallinago*, *Scolopax rusticola*, *Tringa* spp., *Asio flammeus*, *Apus apus*, *Corvus moravicus*, *Corvus monedula*

Layer: M. F. 5

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Anas strepera*, *Anas querquedula*, *Anas clypeata*, *Falco tinnunculus*, *Falco sub-buteo*, *Tetrao tetrix*, *Perdix perdix*, *Fulica atra*, *Himantopus himantopus*, *Pluvialis squatarola*, *Vanellus vanellus*, *Philomachus pugnax*, *Gallinago gallinago*, *Gallinago media*, *Scolopax rusticola*, *Limosa* spp., *Numenius phaeopus*, *Tringa* spp., *Larus canus*, *Athene noctua*, *Asio flammeus*, *Acrocephalus* sp., *Corvus* cf. *corone*

Layer: M. F. 6

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Anas strepera*, *Anas querquedula*, *Anas clypeata*, *Falco tinnunculus*, *Falco sub-buteo*, *Tetrao tetrix*, *Perdix perdix*, *Coturnix coturnix*, *Francolinus minor*, *Charadrius* sp., *Vanellus vanellus*, *Philomachus pugnax*, *Gallinago gallinago*, *Gallinago media*, *Scolopax rusticola*, *Limosa* spp., *Numenius phaeopus*, *Tringa* spp., *Cuculus canorus*, *Apus apus*, *Delichon urbica*, *Anthus* sp.

Layer: M. F. 7

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Anas clypeata*, *Tetrao tetrix*, *Vanellus vanellus*, *Calidris* sp., *Lymnocyrtus minimus*

Layer: M. F. 8

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Anas strepera*, *Anas querquedula*, *Anas clypeata*, *Falco peregrinus*, *Bonasa bonasia*, *Tetrao tetrix*, *Coturnix coturnix*, *Francolinus minor*, *Rallus aquaticus*, *Crex crex*, *Pluvialis squatarola*, *Vanellus vanellus*, *Philomachus pugnax*, *Scolopax rusticola*, *Limosa* spp., *Numenius phaeopus*, *Tringa* spp., *Asio flammeus*, *Riparia riparia*, *Delichon urbica*, *Pica pica*, *Corvus monedula*

Layer: M. F. 9

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Anas querquedula*, *Anas clypeata*, *Bonasa bonasia*, *Coturnix coturnix*, *Tringa* spp., *Delichon urbica*

Layer: M. F. 10

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Anas querquedula*, *Anas clypeata*, *Tetrao tetrix*, *Coturnix coturnix*, *Francolinus subfrancolinus*, *Gallinula gigantea*, *Fulica atra*, *Vanellus vanellus*, *Scolopax rusticola*, *Limosa* spp., *Strix aluco*, *Hirundo rustica*, *Delichon urbica*, *Corvus monedula*, *Coccothraustes coccothraustes*

Layer: M. F. 11

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Anas querquedula*, *Anas clypeata*, *Bucephala clangula*, *Falco peregrinus*, *Tetrao urogallus*, *Tetrao tetrix*, *Coturnix coturnix*, *Francolinus minor*, *Crex crex*, *Gallinula*

gigantea, *Vanellus vanellus*, *Philomachus pugnax*, *Scolopax rusticola*, *Limosa* spp.,
Numenius phaeopus, *Pica pica*

Layer: M. F. 12

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Anas querquedula*, *Anas clypeata*, *Asio flammeus*

Layer: M. F. 13

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Podiceps grisegena*, *Anser* sp., *Anas strepera*, *Anas querquedula*, *Anas clypeata*,
Bucephala clangula, *Mergus serrator*, *Mergus connectens*, *Accipiter nisus*, *Falco*
tinnunculus, *Falco subbuteo*, *Falco peregrinus*, *Bonasa bonasia*, *Tetrao urogallus*,
Tetrao tetrix, *Coturnix coturnix*, *Francolinus minor*, *Francolinus capeki*, *Francolinus*
subfrancolinus, *Crex crex*, *Gallinula gigantea*, *Fulica atra*, *Tetrax tetrax*, *Charadrius*
sp., *Pluvialis squatarola*, *Vanellus vanellus*, *Gallinago gallinago*, *Gallinago media*,
Scolopax rusticola, *Limosa* spp., *Numenius phaeopus*, *Athene noctua*, *Strix aluco*,
Asio flammeus, *Apus apus*, *Picus canus*, *Dendrocopos major*, *Hirundo rustica*,
Delichon urbica, *Anthus* sp., *Turdus* spp., *Garrulus glandarius*, *Pica pica*,
Nucifraga caryocatactes, *Corvus pliocaenus*, *Corvus* cf. *corone*, *Corvus moravicus*,
Corvus monedula

Layer: M. F. 14

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Anas strepera*, *Anas querquedula*, *Anas clypeata*, *Falco subbuteo*, *Falco peregrinus*,
Tetrao tetrix, *Coturnix coturnix*, *Lymnocyptes minimus*, *Gallinago gallinago*,
Gallinago media, *Tringa* spp., *Delichon urbica*

Layer: M. F. 15

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Anas strepera*, *Anas querquedula*, *Anas clypeata*, *Bucephala clangula*, *Mergus*
merganser, *Mergus serrator*, *Falco tinnunculus*, *Tetrao tetrix*, *Coturnix coturnix*,
Porzana sp., *Fulica atra*, *Lymnocyptes minimus*, *Gallinago media*, *Scolopax rusticola*,
Numenius phaeopus, *Columba palumbus*, *Athene noctua*, *Dendrocopos major*,
Delichon urbica, *Pica pica*, *Corvus pliocaenus*, *Corvus* cf. *corone*, *Corvus monedula*

Layer: M. F. 16

Date: MP MNQ 21 "Upper Biharian"

Fauna: *Anas strepera*, *Anas querquedula*, *Anas clypeata*, *Falco tinnunculus*, *Coturnix*
coturnix, *Francolinus subfrancolinus*

Det: Mlíkovský

Stored: Moravské Museum, Brno

Notes: M. F. 3/16 is short for "Musil's Talus Fan" layers 3–16. Also known as
Lateiner-Berg-Grotten

CZ 42 Svédov stul (Moravia)

Alt.: 340

Type: c

Sources: Musil 1962; 1980b; Skutil & Stehlik 1939

Layer: C, middle part

Date: LP

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Notes: also known as Schwedentisch-Grotte

CZ 43 Syrovy zleb (Moravia)

Type: c ?

Source: Skutil & Stehlik 1939

Date: LP ?

Fauna: *Corvus monedula*

CZ 44 Veruncina (Moravia)

Type: c

Sources: Musil 1958a; Skutil & Stehlik 1939

Date: LP Magdalenian?

Fauna: *Cygnus cygnus*, *Bonasa bonasia*, *Tetrao urogallus*, *Falco columbarius*, *Lagopus* sp., *Strix aluco*, *Strix uralensis*, *Picus canus*, *Turdus pilaris*, *Turdus viscivorus*, *Saxicola rubetra*, *Parus major*, *Garrulus glandarius*

Notes: also known as Veronika-Höhle

CZ 45 Vypustek (Moravia)

Alt.: 387

Type: c

Sources: Lambrecht 1933; Skutil & Stehlik 1939 (Kriz 1893, Liebe 1879)

Date: LP ? Aurignacian ?

Fauna: *Anser anser*, *Gallus gallus*

Det.: Capek

CZ 46 Zazdená (Moravia)

Type: c

Source: Skutil & Stehlik 1939

Date: LP

Fauna: *Perdix perdix*, *Columba oenas*, *Columba palumbus*, *Strix aluco*, *Garrulus glandarius*

CZ 47 Zechovice (Bohemia)

Alt.: 560

Type: o

Source: Lambrecht 1933

Date: LP?

Fauna: *Anser fabalis*, *Bonasa bonasia*, *Lagopus lagopus*

Notes: uncertain whether Zechovice I or II

CZ 48 Zechovice I (Bohemia)

Alt.: 560

Type: o

Sources: Lambrecht 1933; Zelízko 1924

Date: LP ?

Fauna: *Falco tinnunculus*, *Aegolius funereus*, *Turdus philomelos*, *Turdus viscivorus*, *Pyrrhula pyrrhula*, *Carduelis spinus*, *Miliaria calandra*, *Garrulus glandarius*, *Corvus monedula*, *Alauda arvensis*, *Lullula arborea*, *Regulus regulus*, *Picus canus*,

Tetrao urogallus, Tetrao tetrax, Lagopus lagopus, Perdix perdix, Coturnix coturnix, Anser fabalis, Dendrocygna major

Det.: Capek

CZ 49 Zechovice II (Bohemia)

Alt.: 560

Type: o

Sources: Lambrecht 1933; Zelízko 1924

Date: LP ?

Fauna: *Anas acuta, Aythya ferina, Mergus merganser, Mergus serrator, Falco tinnunculus, Accipiter nisus, Lagopus mutus, Tetrao urogallus, Tetrao tetrax, Perdix perdix, Porzana porzana, Vanellus vanellus, Actitis hypoleucos, Gallinago media, Sterna hirundo, Asio otus, Asio flammeus, Athene noctua, Alauda sp.?, Motacilla alba, Oenanthe oenanthe, Turdus philomelos, Turdus pilaris, Parus major, Corvus monedula, Carduelis cannabina, Loxia pytyopsittacus, Passer domesticus, Emberiza citrinella*

Det.: Capek

Notes: *Motacilla alba, Athene noctua*, according to Lambrecht (1933)

CZ 50 Zkamenely zámek (Moravia)

Type: c

Source: Skutil 1941

Date: LP ?

Fauna: *Lagopus lagopus, Lagopus mutus*

CZ 51 Zuzlavitz (Bohemia)

Type: c

Source: Lambrecht 1933 (Woldrich 1881b; Zelízko 1925)

Fauna: *Anser anser, Accipiter nisus, Lagopus mutus, Tyto alba, Nyctea scandiaca, Turdus pilaris?, Corvus corax*

Det.: Woldrich ?, Nehring ?

Notes: also known as Sudslavic

CZ 52 Zuzlavitz A (Bohemia)

Type: c

Source: Nehring 1880

Date: LP?

Fauna: *Anas spp., Lagopus sp., Nyctea scandiaca, Corvus corax*

Det.: Nehring

CZ 53 Chlum 4C (Bohemia)

Type: c

Source: Mlíkovský in press.

Date: EP/MP Late Biharian

Fauna: *Anas clypeata, Aquila cf. chrysaetos*

Det: Mlíkovský

Stored: J. Mlíkovský collection, Praha

CZ 54 Chlum 6 (Bohemia)

Type: c

Source: Mlíkovský in press

Date: EP Early Biharian

Fauna: *Tetrao tetrix*, *Palaeocryptonyx donnezani*

Det: Mlíkovský

Stored: J. Mlíkovský collection, Praha

CZ 55 C-718 (Bohemia)

Type: c

Sources: Mlíkovský in press.

Date: MP Latest Biharian "Günz-Mindel"

Fauna: *Palaeocryptonyx donnezani*, *Coturnix coturnix*, *Strix intermedia*, *Dendrocopos major*, *Hirundo rustica*, *Turdus* sp., *Garrulus glandarius*, *Pyrrhocorax graculus*

Det: Mlíkovský

Stored: J. Mlíkovský collection, Praha

Notes: also known as Koneprusy C-718

DENMARK**DA 1 Birkerød (Sjaelland)**

Type: o

Sources: Löppenthin 1955; Winge 1925

Date: LP LG

Fauna: *Lagopus* sp.

Det.: Winge

Notes: perhaps *Lagopus lagopus***DA 2 Borgbakke (Jylland)**

Type: o

Sources: Löppenthin 1967; Winge 1925

Date: LP LG "Zirphaea sea"

Fauna: *Clangula hyemalis*

Det.: Winge

DA 3 Bromme (Sjaelland)

Type: o

Source: Löppenthin 1967

Date: LP LG Allerød (Brommian)

Fauna: *Cygnus cygnus***DA 4 Køge bugt (Sjaelland)**

Alt.: -6

Type: o

Sources: Aaris-Sørensen 1988; Löppenthin 1955

Date: LP LG Allerød-Dryas III

Fauna: *Lagopus lagopus*

Notes: found in submarine peat off Solrød strand

DA 5 Lysmosen (Jylland)

Type: o

Source: Aaris-Sørensen 1988

Date: LP LG Allerød 14C=11,600 BP

Fauna: *Lagopus mutus*



DENMARK (DA)

DA 6 Lönstrup Klint (Jylland)

Type: o

Sources: Aaris Sørensen 1988; Aaris-Sørensen et al. 1990; Löppenthin 1967; Winge 1925

Date: LP Eem ?

Fauna: *Somateria mollissima*

Det.: Winge

DA 7 Nørre Lyngby (Jylland)

Type: o

Sources: Aaris-Sørensen 1988; Jessen & Nordmann 1915; Löppenthin 1955, 1967; Winge 1925

Date: LP LG Allerød-Dryas III

Fauna: *Lagopus mutus*

Det.: Winge

Notes: *Lagopus* sp. according to Aaris-Sørensen**DA 8 Villestoft (Fyn)**

Type: o

Sources: Aaris-Sørensen 1988; Löppenthin 1955

Date: LP LG Bölling ?

Fauna: *Lagopus lagopus*

Det.: Löppenthin, Aaris-Sørensen

Notes: originally identified as *Lagopus mutus* by Löppenthin and dated to Dryas I**EGYPT****EG 1 Abu Noshra II (Wadi Feiran, Sinai)**

Type: o

Sources: Phillips 1987, 1988

Date: LP UP Ahmarian 14C = $31,536 \pm 2,275$ – $33,940 \pm 790$ BPFauna: *Haliaeetus vocifer*

Det.: Reed

EG 2 Ballana, Site 8957 (Nubia)

Type: o

Source: Ballmann 1980b

Date: LP Ballanan culture ?

Fauna: *Ciconia* cf. *nigra*, *Anas* cf. *querquedula*

Det.: Ballmann

EG 3 Bir Sahara East (E-88-1) (Western Desert)

Alt.: 245 T

Type: o

Source: Miller 1993

Date: MP AAR date: 75+70–35, >250 KA BP

Fauna: *Struthio* sp.

EG 4 Bir Sahara East (E-88-2) (Western Desert)

Alt.: 245

Type: o

Sources: Hoffman 1984; Miller 1993; Tomskey 1982

Date: LP Final Acheulean AAR = 100 and 125 KA BP, probably = IS 5e

Fauna: *Struthio* sp.

EG 5 Bir Tarfawi (Western Desert)

Alt.: 245

Type: o

Sources: Bochenski 1991a, 1993b; Kowalski et al. 1989; Miller 1993

Layer: Grey Lake 3 (= fifth lake)

Date: LP 95±10 KA BP probably = IS 5c

Fauna: *Struthio* sp.

Layer: Grey Lake 2 (= fourth Lake)

Date: LP U/Th/ESR = 104–120±14–20 KA BP probably = IS 5e

Fauna: *Struthio camelus*, *Phalacrocorax africanus*, *Nycticorax nycticorax*, cf. *Bubulcus ibis*, *Ardea cinerea*, *Plegadis falcinellus*, *Gyps africanus*, *Turnix* cf. *sylvatica*, *Porzana* cf. *pusilla*, *Gallinula chloropus*, *Fulica cristata*, *Chlamydotis undulata*, *Pterocles* cf. *senegallus*, *Pterocles* sp., *Oena capensis*, *Riparia* cf. *riparia*, *Corvus albus*, *Corvus* sp

Layer: Grey Lake 1 (= third lake)

Date: MP? U/Th/ESR = 130±8 KA BP probably = Late IS 6

Fauna: *Struthio* sp.

Det.: Bochenski

EG 6 Bir Tarfawi (E-86-1) (Western Desert)

Alt.: 245

Type: o

Source: Miller 1993

Date: MP/LP 100–>250 KA BP

Fauna: *Struthio* sp.

EG 7 Bir Tarfawi (E-86-2) (Western Desert)

Alt.: 245

Type: o

Source: Miller 1993

Date: MP/LP

Fauna: *Struthio* sp.

EG 8 Bir Tarfawi (E-87-1) (Western Desert)

Alt.: 245

Type: o

Source: Miller 1993

Date: MP

Fauna: *Struthio* sp.

EG 9 Bir Tarfawi (E-87-2) (Western Desert)

Alt.: 245

Type: o

Source: Kowalski et al. 1989

Layer: Green Lake (= sixth lake)

Date: LP 61–70±9–15 KA BP probably = IS 5a

Fauna: *Struthio* sp.

Det.: Bochenski

EG 10 Bir Tarfawi (E-87-3) (Western Desert)

Alt.: 245

Type: o

Source: Miller 1993

Date: MP/LP

Fauna: *Struthio* sp.

EG 11 Bir Tarfawi (E-87-4) (Western Desert)

Alt.: 245

Type: o

Source: Miller 1993

Date: MP

Fauna: *Struthio* sp.

EG 12 Bir Tarfawi, Site BT-14 (Western Desert)

Alt.: 245

Type: o

Sources: Bochenski 1991a, 1993b

Date: MP/LP ?, probably IS 5a-6

Fauna: *Struthio camelus*, cf. *Circus* sp., cf. *Neotis denhami*, *Pterocles* cf. *senegallus*, *Pterocles* sp., *Caprimulgus* sp., *Corvus albus*

Det.: Bochenski

Notes: Spans same time interval as Green lake + Grey Lakes 1–3

EG 13 Burg el Makkasin ()

Type: o

Source: Vignant 1955

Layer: II

Date: LP LG Sebilian

Fauna: *Struthio* sp.

Det: Gaillard

EG 14 Fayum, Site E29G1 Area C (Fayum)

Type: o

Source: Ballmann 1980b

Date: LP Terminal Palaeolithic, Qarunian

Fauna: *Podiceps cristatus*

Det.: Ballmann

EG 15 Gebel Silsila I (Kom Ombo plain)

Alt.: 100

Type: o

Sources: Churcher 1974; Churcher & Smith 1972 (Churcher 1972)

Date: LP LG Sebekian/Sebilian/Menchian

Fauna: *Ardea cinerea*, *Platalea leucorodia*, *Anas crecca*, *Anas acuta*

Det.: Churcher

Notes: many identifications strongly questioned by Boessneck (1986)

EG 16 Gebel Silsila III (Kom Ombo plain)

Alt.: 100

Type: o

Sources: Churcher 1974; Churcher & Smith 1972 (Churcher 1972)

Layer: Sebek

Date: LP LG Sebekian (perhaps some Silsilian)

Fauna: *Phalacrocorax carbo*, *Ardea cinerea*, *Platalea leucorodia*, *Phoenicopterus ruber*, *Plectropterus gambensis* ?, *Anser albifrons*, *Anser fabalis*, *Branta* sp., *Tadorna feruginea*, *Anas platyrhynchos*, *Anas crecca*, *Anas penelope*, *Anas acuta*, *Aythya ferina*, *Mergus merganser*, *Mergus serrator*, *Mergus albellus*, *Milvus migrans*, *Pandion haliaetus*, *Numenius* cf. *arquata*

Det.: Churcher

Notes: many identifications strongly questioned by Boessneck (1986)

EG 17 Isna, Site E71K18C (Upper Egypt)

Alt.: 100

Type: o

Source: Ballmann 1980b

Date: LP LG Afian culture 14C=12,000–12,600 BP

Fauna: *Tachybaptus ruficollis*, *Anas querquedula*, *Aythya ferina/fuligula*

Det.: Ballmann

EG 18 Khor el Sil area (Kom Ombo plain)

Type: o

Sources: Churcher 1974; Churcher & Smith 1972 (Churcher 1972)

Date: LP LG Halfan

Fauna: *Aquila chrysaetos*

Det.: Churcher

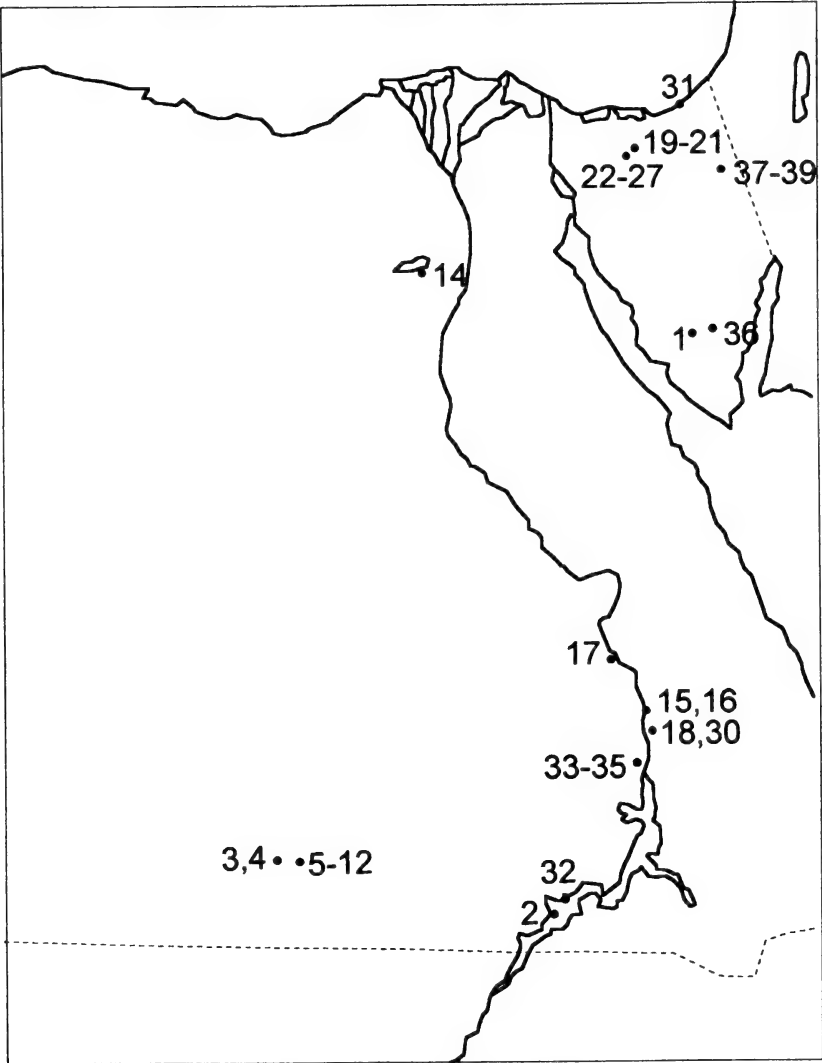
Notes: identifications strongly questioned by Boessneck (1986)

EG 19 Lagama IID (L IID) (Sinai)

Type: o

Source: Goring-Morris 1987

Date: LP Kebaran 14C=30,050±1,240 BP



Not exactly localized sites: 13,28,29

EGYPT (EG)

Fauna: *Struthio* sp.
Notes: eggshells

EG 20 Lagama IV (L IV) (Sinai)

Alt.: 280
Type: o

Source: Goring-Morris 1987

Date: LP LG Harifian

Fauna: *Struthio* sp.

Notes: eggshells

EG 21 Lagama VIII (Sinai)

Alt.: 320

Type: c

Sources: Gilead 1991; Schyle 1992

Date: LP UP Ahmarian 14C=32,980±2,140 BP

Fauna: *Struthio* sp.

EG 22 Mushabi I (M I) (Sinai)

Type: o

Source: Goring-Morris 1987

Date: LP Ramonian 14C=13,620±100, 13,310±110 BP

Fauna: *Struthio* sp.

Notes: eggshells

EG 23 Mushabi III (M III) (Sinai)

Alt.: 370

Type: o

Source: Goring-Morris 1987

Date: LP LG Harifian

Fauna: *Struthio* sp.

Notes: eggshells

EG 24 Mushabi V (M V) (Sinai)

Alt.: 389

Type: o

Source: Henry 1989

Date: LP UP Mushabian 14C=12,990±110, 12,700±90 BP

Fauna: *Struthio* sp.

Det.: Tchernov ?

EG 25 Mushabi XV (M XV) (Sinai)

Alt.: 370

Type: o

Source: Goring-Morris 1987

Date: LP LG Harifian

Fauna: *Struthio* sp.

Notes: eggshells

EG 26 Mushabi XX (M XX) (Sinai)

Alt.: 370

Type: o

Source: Goring-Morris 1987

Date: LP LG Harifian

Fauna: *Struthio* sp.

Notes: eggshells

EG 27 Mushabi XXI (M XXI) (Sinai)

Type: o

Source: Goring-Morris 1987

Date: LP Kebaran

Fauna: *Struthio* sp.

Notes: eggshells; may be Natufian

EG 28 Nubia

Type: o

Source: Tchernov 1968a

Date: LP LG Sebilian (14C = ca. 11,000 BP)

Fauna: *Falco peregrinus*

Det.: Tchernov

EG 29 Nubia

Type: o

Source: Tchernov 1968a

Date: LP EUP (14C = ca. 25,000–30,000 BP)

Fauna: *Porphyrio porphyrio*

Det.: Tchernov

EG 30 Sebil area (Kom Ombo plain)

Type: o

Sources: Churcher 1974; Churcher & Smith 1972 (Churcher 1972)

Date: LP LG Sebekian (Sebilian ?)

Fauna: *Platalea leucorodia*, *Anser albifrons*, *Anas platyrhynchos*, *Grus grus*

Det.: Churcher

Notes: many identifications strongly questioned by Boessneck (1986)

EG 31 Site A 306a (Sinai)

Alt.: 7

Type: o

Sources: Gilead 1984, 1991; Schyle 1992

Date: LP UP Ahmarian 14C=27,100±410 BP

Fauna: *Struthio* sp.

Notes: eggshell

EG 32 Tushka, Site 8905 (Nubia)

Alt.: 140

Type: o

Source: Ballmann 1980b

Date: LP Qadan culture 14C=14,550±490 BP

Fauna: *Anser albifrons*, *Anas acuta*, *Anas crecca/querquedula*

Det.: Ballmann

EG 33 Wadi Kubbaniya, Site E-78-2 (Upper Egypt)

Alt.: 100

Type: o

Sources: Gautier 1987; Gautier, Ballmann & van Neer 1980

Date: LP UP Kubbaniyan 14C=16,540±1160,19,100±2,130 BP

Fauna: *Fulica atra*

Det.: Ballmann

Stored: Laboratorium voor Paleontologie, Gent

EG 34 Wadi Kubbaniya, Site E-78-3 (Upper Egypt)

Alt.: 100

Type: o

Sources: Gautier 1987; Gautier, Ballmann & van Neer 1980

Date: LP UP Kubbaniyan 14C=16,960–18,660 BP

Fauna: *Tachybaptus ruficollis*, *Anser albifrons*, *Anas platyrhynchos*, *Anas* sp., *Aythya ferina/fuligula*, *Fulica atra*

Det.: Ballmann

Stored: Laboratorium voor Paleontologie, Gent

EG 35 Wadi Kubbaniya, Site E-78-8 (Upper Egypt)

Alt.: 100

Type: o

Sources: Gautier 1987; Gautier, Ballmann & van Neer 1980

Date: LP UP ca. 17,000–18,000 BP

Fauna: *Fulica atra*

Det.: Ballmann

Stored: Laboratorium voor Paleontologie, Gent

EG 36 Wadi Tbeik (Sinai)

Type: o

Sources: Tchernov & Bar-Yosef 1982

Date: LP/Holocene PPNB, Archaeological dating ca. 8,500 BP, 14C=10,350±100 BP

Fauna: *Struthio camelus*, *Ammoperdix heyi*, *Alectoris chukar*, *Chlamydotis undulata*, *Porphyrio porphyrio*

Det.: Tchernov

Notes: also known as Wadi Tubaiq.

EG 37 Qadesh Barnea QB 9 (Sinai)

Type: o

Source: Gilead 1991

Date: LP UP

Fauna: *Struthio* sp.

Notes: eggshells; also known as Kadesh Barneah

EG 38 Qadesh Barnea QB 501 (Sinai)

Type: o

Sources: Phillips 1994; Gilead 1991

Date: LP UP Ahmarian 14C=33,800±940 BP

Fauna: *Struthio* sp.

Notes: eggshells; also known as Kadesh Barneah

EG 39 Qadesh Barnea QB 601 (Sinai)

Type: o

Sources: Phillips 1994; Gilead 1991

Date: LP UP Ahmarian 14C=32470±780 BP

Fauna: *Struthio* sp.

Notes: eggshells; also known as Kadesh Barneah

FRANCE**FR 1 Abeurador (Hérault)**

Alt.: 560

Type: c

Source: Vilette 1983

Layer: 8–10

Date: LP ?, Epipaleolithic

Fauna: *Lagopus* sp., *Perdix perdix*, *Columba oenas*, *Asio otus*, *Turdus pilaris*, *Turdus torquatus*, *Pyrhula pyrhula*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*

Det.: Vilette

FR 2 Abri Bourgeois-Delaunay (Charente)

Type: c

Source: Mourer-Chauviré 1975a

Layer: 2

Date: LP Aurignacian

Fauna: *Corvus corax*

Layer: 6

Date: LP Mousterian

Fauna: *Aegypius monachus*

Layer: 9

Date: LP Probably IS 5d, Mousterian, Age between 123±17,17±8 and 97±6,01±12 KA BP

Fauna: *Aegypius monachus*

Layer: 10

Date: LP Prob IS 5d, Mousterian, Age between 123±17,17±8 and 97±6,01±12 KA BP

Fauna: *Columba livia*

Det.: Mourer-Chauviré

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 3 Abri Castanèt (Dordogne)

Alt.: 95

Type: c

Source: Bouchud 1952b

Date: LP Aurignacian II

Fauna: *Anas platyrhynchos*, *Falco naumanni*, *Perdix perdix*, *Pluvialis squatarola*,
Charadrius morinellus, *Limosa limosa*, *Anthus spinoletta*, *Turdus merula*, *Pyrhoro-*
corax pyrrhcorax, *Pyrhoro-*
corax graculus, *Garrulus glandarius*, *Pica pica*

Det.: Bouchud

Stored: Musée de Préhistoire, Les Eyzies ?

FR 4 Abri Dufaure (Landes)

Alt.: 104

Type: c

Source: Altuna et al. 1991

Layer: 3

Date: LP-Hol Azilian Dryas 3-PB 14C=10,300–9,600 BP

Fauna: *Ardea cinerea*, *Cygnus olor*, *Anas penelope*, *Anas crecca*, *Tetrao urogallus*, *Strix*
 sp., *Alauda arvensis*, *Turdus merula*, *Turdus iliacus*, *Turdus philomelos*, *Garrulus*
glandarius, *Pyrhoro-*
corax pyrrhcorax

Layer: 4U

Date: LP LG Magdalenian Dryas 2–Alleröd 14C=12,200–11,000 BP

Fauna: *Anser fabalis*, *Anas penelope*, *Anas platyrhynchos*, *Aquila chrysaetos*, *Falco pere-*
grinus, *Lagopus lagopus*, *Tringa totanus*, *Bubo bubo*, *Nyctea scandiaca*, *Turdus*
merula, *Turdus viscivorus*, *Corvus corax*

Layer: 4U-M

Date: LP LG Magdalenian Dryas 2–Alleröd 14C=12,200–11,000 BP

Fauna: *Gavia immer*, *Anser anser*, *Anser fabalis*, *Anser* sp., *Anas platyrhynchos*, *Falco*
tinnunculus, *Tringa totanus*, *Bubo bubo*, *Nyctea scandiaca*, *Alauda arvensis*, *Tur-*
dus iliacus, *Fringilla coelebs*, *Montifringilla nivalis*, *Pica pica*, *Corvus corax*, *Pyrho-*
corax pyrrhcorax

Layer: 4L-M

Date: LP LG Magdalenian Dryas 2–Alleröd 14C=12,200–11,000 BP

Fauna: *Anser anser*, *Anser fabalis*, *Nyctea scandiaca*, *Alauda arvensis*, *Montifringilla*
nivalis, *Pica pica*, *Pyrhoro-*
corax pyrrhcorax

Layer: 4L

Date: LP LG Magdalenian Dryas 2–Alleröd 14C=12,200–11,000 BP

Fauna: *Cygnus columbianus*, *Buteo buteo/lagopus*, *Burhinus oedicnemus*, *Bubo bubo*,
Nyctea scandiaca, *Turdus merula*, *Pica pica*

Layer: 5

Date: LP Magdalenian Dryas 1-Bölling 14C=14,000–12,600 BP

Fauna: *Lagopus lagopus*, *Nyctea scandiaca*, *Lullula arborea*, *Alauda arvensis*, *Turdus*
iliacus, *Phylloscopus collybita/trochilus*, *Montifringilla nivalis*, *Corvus corax*,
Pyrhoro-
corax pyrrhcorax

Layer: 6

Date: LP Magdalenian 14C=14,600–14,000 BP

Fauna: *Nyctea scandiaca*, *Alauda arvensis*

Det.: Eastham

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 5 Abri Faustin (Gironde)

Type: c

Sources: Delpech 1975, 1983

Date: LP LG Magdalenian VI

Fauna: *Anas platyrhynchos*, *Nyctea scandiaca*

Det.: Delpech

Stored: Institut du Quaternaire, Université de Bordeaux I

Notes: also known as Moulin de Barreaux

FR 6 Abri Fritsch (Indre)

Type: c

Source: Mourer-Chauviré 1983a

Date: LP Solutrean-Early Magdalenian 14C=14,960–19,280 BP

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

Notes: also known as Abri Fritsch aux Roches.

FR 7 Abri Gay (Ain)

Type: c

Sources: Mourer-Chauviré 1975a, 1977b

Date: LP LG Magdalenian

Fauna: *Anas platyrhynchos*, *Aythya fuligula*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Crex crex*, *Vanellus vanellus*, *Pluvialis squatarola*, *Gallinago media*, *Dendrocopos major*, *Turdus viscivorus*, *Montifringilla nivalis*, *Pyrhocorax graculus*

Layer: 11

Date: LP LG Alleröd Azilian 14C=11,660±240 BP

Fauna: *Clangula hyemalis*, *Lagopus lagopus*, *Pluvialis squatarola*, *Charadrius hiaticula*, *Numenius phaeopus*, *Rissa tridactyla*, *Sterna paradisaea*, *Nyctea scandiaca*, *Lagopus mutus*, *Tetrao tetrix*, *Charadrius morinellus*, *Montifringilla nivalis*, *Pyrhocorax graculus*

Det.: Mourer-Chauviré

Stored: Centre des Fouilles Préhistoriques de l'Ain, Château de Chenavel

FR 8 Abri Lafaye (Tarn-et-Garonne)

Type: c

Sources: Gordon 1988; Lambrecht 1933; Lydekker 1891a; Milne-Edwards 1867–71, 1875a,b; Mourer-Chauviré 1975a; Paris 1912; Wolf 1938–41 (Milne-Edward & Lartet 1864)

Date: LP LG Magdalenian 14C=11,110–12,070 BP

Fauna: *Aegypius monachus*, *Gypaetus barbatus*, *Aquila chrysaetos*, *Lagopus lagopus*, *Lagopus mutus*, *Bubo bubo*, *Nyctea scandiaca*, *Pyrhocorax pyrrhocorax*

Det.: Lydekker ?

Stored: British Museum (Natural History)

Date: LP LG Magdalenian

Fauna: *Anas platyrhynchos*, *Anas querquedula*, *Anas* sp., *Lagopus lagopus*, *Lagopus mutus*, *Tetrao urogallus*, *Gallus gallus*, *Coturnix coturnix*, *Rallus aquaticus*, *Aegypius monachus*, *Buteo buteo*, *Buteo rufinus*, *Aquila chrysaetos*, *Falco tinnunculus*, *Numenius arquata*, *Tyto alba*, *Athene noctua*, *Nyctea scandiaca*, *Bubo bubo*, *Asio flammeus*, *Hirundo rupestris*, *Phoenicurus phoenicurus*, *Corvus corax*, *Pyrhocorax graculus*, *Montifringilla nivalis*

Det.: Milne-Edwards; Lydekker; Mourer-Chauviré

Stored: Musée de Montauban, Musée d'Histoire naturelle de Paris

Notes: *Gypaetus barbatus* rejected by Mourer-Chauviré; also known as Bruniquel

FR 9 Abri Mège (Dordogne)

Type: c

Sources: Lambrecht 1933; Wolf 1938–41 (Capitan et al. 1906)

Date: LP LG Magdalenian

Fauna: *Anser* sp., *Haliaeetus albicilla*, *Falco tinnunculus*, *Lagopus lagopus*, *Gallus gallus*, *Pluvialis apricaria*, *Chradriidae* sp., *Asio* sp., *Oenanthe oenanthe*, *Turdus viscivorus*, *Corvus corax*, *Carduelis chloris*

FR 10 Abri No 1 de Chinchon (Vaucluse)

Type: c

Sources: Brochier 1977; Mourer-Chauviré 1975a

Layer: A2b

Date: LP LG

Fauna: *Perdix perdix*

Layer: B

Date: LP LG Magdalenian mediterranean

Fauna: *Anas crecca*

Layer: B1

Date: LP LG Magdalenian V

Fauna: *Perdix perdix*, *Gallus gallus*, *Columba livia*

Det.: Mourer-Chauviré

Stored: Musée Requien, Avignon ?

FR 11 Abri Olha (Pyrénées-Atlantiques)

Type: c

Sources: Altuna 1972; Clot & Mourer-Chauviré 1986; Elorza 1990; Passemard 1923 (Passemard 1924)

Date: LP Mousterian "Würm II"

Fauna: *Calonectris diomedea*, *Anas platyrhynchos*, *Melanitta nigra*, *Anas querquedula*, *Buteo buteo*, *Buteo* cf. *rufinus*, *Falco tinnunculus*, *Perdix perdix*, *Alectoris graeca*, *Coturnix coturnix*, *Pluvialis apricaria*, *Calidris alpina*, *Calidris* aff. *minuta*, *Calidris* aff. *ferruginea*, *Larus argentatus*, *Sterna hirundo*, *Asio otus*, *Prunella collaris*, *Turdus torquatus*, *Turdus* aff. *merula*, *Corvus corax*, *Corvus corone*, *Pyrhocorax pyrrhocorax*, *Pyrhocorax graculus*, *Garrulus glandarius*, *Passer* aff. *domesticus*

Det.: Gaillard

Stored: Musée d'Arudy ?

Notes: also known as Olha 1

FR 12 Abri Pataud (Dordogne)

Alt.: 75

Type: c

Source: Bouchud 1975

Layer: 2

Date: LP Protomagdalenian 14C=19,650±300, 20,810±170, 21,380±340, 21,940±250, 20,960±220, 20,780±170, 19,300±170, 20,540±140, 20,340±200, 19,780±170, 22,000±600 BP

Fauna: *Larus argentatus*, *Turdus viscivorus*, *Pyrhcorax graculus*

Layer: 3

Date: LP Perigordien VI 14C=24,500±600, 21,740±450, 24,440±740, 24,250±750, 23,180±670, 23,010±170, 21,540±160, 22,780±140 BP

Fauna: *Cyps fulvus*, *Gypaetus barbatus*, *Otus scops*, *Lagopus mutus*, *Pyrhcorax graculus*

Layer: 4

Date: LP Noaillian 14C=26,300±900, 26,900±1000, 27,060±370 BP

Fauna: *Corvus corax*, *Pyrhcorax graculus*

Layer: 5

Date: LP Perigordien IV 14C=28,400±1100, 26,600±200, 26,000±1000, 28,150±225, 27,900±260, 26,050±310, 27,660±260 BP

Fauna: *Perdix perdix*, *Columba oenas*, *Corvus corax*, *Pyrhcorax graculus*

Layer: Eb. 5/6

Date: LP 14C=>28,000, <32,000 BP

Fauna: *Pyrhcorax graculus*

Layer: Eb. 6/7

Date: LP 14C= ca. 32,000–33,000 BP

Fauna: *Aegypius monachus*, *Perdix perdix*, *Anthus spinoletta*, *Motacilla* sp.

Layer: Eb. 7/8

Date: LP 14C=>32,000 BP

Fauna: *Perdix perdix*, *Tetrax tetrax*, *Anthus spinoletta*, *Motacilla* sp., *Corvus monedula*, *Pyrhcorax graculus*

Layer: Eb. 9/10

Date: LP 14C=>33,000 BP

Fauna: *Motacilla* sp.

Layer: Eb. 10/11

Date: LP 14C=32–33,000 BP

Fauna: *Pyrhcorax graculus*

Det.: Bouchud

Stored: Musée de Préhistoire, Les Eyzies ?

FR 13 Abri Suard (Charente)

Type: c

Source: Mourer-Chauviré 1975a (Bouchud & Bouchud 1953c, 1956)

Layer: I

Date: LP Mousterian ?; younger than 51 ± 6 KA BP

Fauna: *Falco tinnunculus*, *Corvus corax*

Layer: III

Date: MP "Riss III" Upper Acheulean; age between 112 ± 12 and 150 KA BP

Fauna: *Anser brachyrhynchus* ?, *Anas platyrhynchos*, *Hirundo daurica*

Notes: *Motacilla alba* and *Turdus merula* not mentioned by Mourer-Chauviré.

Layer: V-VI

Date: MP "Riss III" Upper Acheulean; age between 112 ± 12 and 150 KA BP

Fauna: *Aythya fuligula*, *Mergus serrator*, *Mergus merganser*, *Aegypius monachus*, *Falco tinnunculus*, *Lagopus* sp., *Perdix* cf. *paleoperdix*, *Pluvialis squatarola*, *Charadrius morinellus*?, *Tringa nebularia*, *Columba livia*, *Galerida cristata*, *Hirundo daurica*, *Anthus spinoletta*?, *Turdus torquatus*?, *Turdus merula*, *Pyrhcorax graculus* cf. *vetus*

Notes: *Motacilla alba*, *Prunella collaris* not mentioned by Mourer-Chauviré.

Layer: VIII

Date: MP "Riss III" Upper Acheulean

Fauna: *Lagopus* sp., *Perdix* cf. *paleoperdix*, *Pyrhcorax graculus* *vetus*

Notes: *Lagopus* sp. determined as *Lagopus lagopus* by Bouchud.

Layer: IX

Date: MP "Riss III" Upper Acheulean

Fauna: *Pyrhcorax graculus* *vetus*

Layer: Déblais

Date: LP/MP "R/W-Riss III" Upper Acheulean/Mousterian

Fauna: *Melanitta nigra*, *Lagopus* sp., *Perdix* cf. *paleoperdix*, *Gallus gallus*, *Picus viridis*, *Turdus merula*, *Turdus iliacus*

Det.: Bouchud, Mourer-Chauviré

Stored: Institut du Quaternaire, Université de Bordeaux I

Notes: also known as La Chaise

FR 14 Abri du Calvaire (Hautes-Pyrénées)

Type: c

Source: Clot & Mourer-Chauviré 1986 (Clot 1983)

Date: LP LG Magdalenian final 14C=12,450±300–11,750±430 BP

Fauna: *Tetrao tetrix*, *Hirundo rupestris*, *Turdus merula*, *Turdus iliacus*, *Acrocephalus arundinaceus*, *Pyrhcorax graculus*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 15 Abri de Campalou (Drôme)

Type: c

Source: Mourer-Chauviré 1975a

Layer: 1

Date: LP/Hol ?

Fauna: *Anas platyrhynchos*, *Aythya nyroca*, *Falco tinnunculus*, *Perdix perdix*, *Tetrax tetrax*, *Oenanthe oenanthe*, *Turdus merula*, *Turdus viscivorus*, *Parus major*, *Fringilla coelebs*, *Pyrhcorax graculus*

Layer: 2

Date: LP LG Azilian 14C=12,850±200 BP

Fauna: *Anas platyrhynchos*, *Aquila chrysaetos*, *Lagopus* sp., *Tetrao tetrix*, *Perdix perdix*, *Bubo bubo*, *Galerida cristata*, *Oenanthe oenanthe*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Sylvia communis*?, *Parus major*, *Fringilla coelebs*, *Carduelis cannabina*, *Coccothraustes coccothraustes*, *Pyrhcorax graculus*

Layer: 3

Date: LP LG Magdalenian

Fauna: *Podiceps auritus*, *Anas platyrhynchos*, *Aquila chrysaetos*, *Falco tinnunculus*, *Lagopus lagopus*, *Tetrao tetrix*, *Coturnix coturnix*, *Columba livia*, *Cuculus canorus*, *Strix aluco*, *Cinclus cinclus*, *Oenanthe oenanthe*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Fringilla coelebs*, *Coccothraustes coccothraustes*, *Pica pica*, *Pyrhcorax graculus*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 16 Abri de Fontalès (Tarn-et-Garonne)

Type: c

Sources: Darasse & Guffroy 1960; Mourer-Chauviré 1972a,b, 1977b (Bouchud & Bouchud 1957a)

Date: LP LG Magdalenian superieur (V-VI)

Fauna: *Aegypius* sp., *Falco tinnunculus*, *Perdix perdix*, *Lagopus lagopus*, *Lagopus mutus*, *Larus argentatus*, *Nyctea scandiaca*, *Hirundo rupestris*, *Prunella collaris*, *Pyrhcorax graculus*

Det.: Bouchud

Stored: Département des Sciences de la Terre, Lyon

Notes: also known as Saint-Antonin

FR 17 Abri de Pageyral (Dordogne)

Type: c

Sources: Lambrecht 1933; Paris 1912; Wolf 1938–41

Date: LP

Fauna: *Phasianus* sp., *Milvus milvus*, *Asio flammeus*, *Pyrhcorax pyrrhcorax primigenius*

Det.: Rivière ?

Notes: also known as Grotte de Pageyral, Delluc de Tayac

FR 18 Abri de Rochedane (Doubs)

Type: c

Sources: Mourer-Chauviré 1975a, 1979c; Thévenin et al. 1979

Layer: A3/A4

Date: LP LG Epipaleolithic/Mesolithic

Fauna: *Crex crex*

Layer: A4

Date: LP LG Epipaleolithic 14C=9,210±120 BP "Preboreal"

Fauna: *Lagopus* cf. *mutus*, *Lagopus* sp., *Tetrao tetrix*, *Crex crex*, *Actitis hypoleucos*, *Lullula arborea*

Layer: A4/B

Date: LP LG Epipaleolithic

Fauna: *Lagopus* cf. *lagopus*, *Lagopus* cf. *mutus*, *Lagopus* sp., *Tetrao tetrix*, *Crex crex*, *Aegolius funereus*, *Dendrocopos minor*, *Hirundo rustica*, *Turdus pilaris*, *Turdus iliacus*

Layer: B

Date: LP LG Epipaleolithic 14C=10,730±190 BP "Dryas 3/Preboreal"

Fauna: cf. *Anas platyrhynchos*, *Falco tinnunculus*, *Lagopus* cf. *lagopus*, *Lagopus* cf. *mutus*, *Lagopus* sp., *Tetrao urogallus*, *Tetrao tetrix*, *Crex crex*, *Dryocopus martius*, *Turdus pilaris*, *Acrocephalus palustris*

Layer: B/C'1

Date: LP LG Epipaleolithic

Fauna: *Tetrao tetrix*, *Crex crex*

Layer: C'1

Date: LP LG Epipaleolithic 14C=11,090±200 BP "Alleröd/Dryas 3"

Fauna: *Lagopus* cf. *lagopus*, *Lagopus* cf. *mutus*, *Lagopus* sp., *Tetrao tetrix*, *Crex crex*, *Hirundo rustica*

Layer: D

Date: LP LG Magdalenian VI 14C=11,060±470 BP

Fauna: *Tetrao tetrix*

Det.: Mourer-Chauviré

Stored: Direction des Antiquités Préhistoriques d'Alsace-Lorraine, Strasbourg

FR 19 Abri de Roquecourbière (Ariège)

Alt.: 365

Type: c

Sources: Cazedessus 1929; Wolf 1938–41

Date: LP Mousterian (Würm ancien)

Fauna: *Aquila chrysaetos*

Det.: Gaillard

FR 20 Abri de Roquefure (Vaucluse)

Type: c

Sources: Mourer-Chauviré 1975a, 1979c

Layer: A1

Date: LP/Hol Mesolithic ? "postérieur de l'Alleröd"

Fauna: *Accipiter gentilis*, *Otis tarda*, *Anthus pratensis*

Layer: B

Date: LP/Hol Mesolithic ? "postérieur de l'Alleröd"

Fauna: *Alectoris barbara*, *Bubo bubo*

Det.: Mourer-Chauviré

Stored: Musée Requien, Avignon ?

FR 21 Abri de Vauloubau (Vaucluse)

Type: c

Source: Paulus & Tron 1944

Date: LP/Early Holocene UP

Fauna: *Gypaetus barbatus*

Stored: Musée Requien, Avignon ?

FR 22 Abri de la Genière (Ain)

Type: c

Sources: Gaillard et al. 1927a,b; Wolf 1938–41

Layer: B

Date: LP LG Magdalenian

Fauna: *Tetrao tetrix*, *Perdix perdix*, *Gallus* sp.?, *Corvus corone*

Det.: Gaillard

FR 23 Abri des Battuts (Tarn)

Type: c

Sources: Delpech 1975, 1983

Layer: Déblais

Date: LP Aurignacian-Perigordien

Fauna: *Falco rusticolus*, *Lagopus lagopus*, *Perdix perdix*, *Corvus corax*

Layer: 3

Date: LP Aurignacian

Fauna: *Corvus corax*

Layer: 5

Date: LP Perigordien Vb

Fauna: *Aquila chrysaetos*

Layer: 7

Date: LP Perigordien Vc (Noailles)

Fauna: *Alauda arvensis*, *Hirundo* sp.

Layer: 9

Date: LP Perigordien superieur

Fauna: *Falco tinnunculus*, *Nyctea scandiaca*

Det.: Delpech

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 24 Abri des Pêcheurs (Ardèche)

Type: c

Source: Vilette 1983

Layer: Ensemble 1 (l. 2–8, foyers 1–4)

Date: LP Magdalenian final

Fauna: *Otus scops*

Layer: Ensemble 2 (l. 11–12, foyers 5a–5b)

Date: LP Epigravettian-Solutrean 14C=24 940±680 BP

Fauna: *Perdix perdix*, *Tetrax tetrax*, *Otus scops*, *Pyrhacorax graculus*

Layer: layer 13

Date: LP between Perigordien final and Epigravettian-Solutrean

Fauna: *Buteo lagopus*, *Perdix perdix*, *Coturnix coturnix*, *Columba oenas*, *Nyctea scandiaca*, *Apus apus*, *Cinclus cinclus*, *Pyrhacorax graculus*

Layer: Ensemble 3 (l. 14–15, foyer 6–7)

Date: LP Perigordien final

Fauna: *Falco* cf. *naumanni*, *Falco tinnunculus*, *Nyctea scandiaca*, cf. *Pinicola enucleator*

Layer: Ensemble 4 (l. 17a–18b, foyer 8–9)

Date: LP Aurignacian I

Fauna: *Columba oenas*, *Hirundo daurica*, cf. *Pinicola enucleator*, *Pyrrhocorax graculus*

Det.: Vilette

Stored: Musée de Préhistoire d'Ornac ?

Notes: also known as Les Pêcheurs

FR 25 Abri du Blot (Haute-Loire)

Type: c

Source: Mourer-Chauviré 1975a

Layer: 23

Date: LP Protomagdalenian 14C=21,500±700–21,700±1,200 BP Würm IIIc

Fauna: *Hirundo rustica*, *Oenanthe oenanthe*, *Phoenicurus phoenicurus*

Layer: 23–24

Date: LP Protomagdalenian 14C=21,500±700–21,700±1,200 BP Würm IIIc

Fauna: *Oenanthe oenanthe*

Layer: 24

Date: LP Protomagdalenian 14C=21,500±700–21,700±1,200 BP Würm IIIc

Fauna: *Oenanthe oenanthe*, *Montifringilla nivalis*

Layer: 25–26

Date: LP Protomagdalenian 14C=21,500±700–21,700±1,200 BP Würm IIIc

Fauna: *Cinclus cinclus*

Layer: 26

Date: LP Protomagdalenian 14C=21,500±700–21,700±1200 BP Würm IIIc

Fauna: *Hirundo daurica*, *Oenanthe oenanthe*, *Phoenicurus phoenicurus*, *Montifringilla nivalis*

Layer: 27

Date: LP Protomagdalenian 14C=21,500±700–21,700±1200 BP Würm IIIc

Fauna: *Lagopus mutus*, *Oenanthe oenanthe*, *Montifringilla nivalis*

Layer: 28

Date: LP Protomagdalenian 14C=21,500±700–21,700±1200 BP Würm IIIc

Fauna: *Oenanthe oenanthe*

Layer: unstratified

Date: LP Protomagdalenian 14C=21,500±700–21,700±1200 BP Würm IIIc

Fauna: *Gallinago media*, *Calandrella brachydactyla*, *Oenanthe oenanthe*, *Montifringilla nivalis*, *Pyrrhocorax pyrrhocorax*

Det.: Mourer-Chauviré

FR 26 Abri du Facteur (Dordogne)

Alt.: 95

Type: c

Source: Bouchud 1968

Layer: 9–11

Date: LP Perigordian V Tursac oscillation $14C=23,180\pm1,500$ (l. 11),
 $24,720\pm600$, $24,210\pm500$, $24,400\pm600$, $24,690\pm600$, $25,450\pm650$,
 $25,630\pm650$ BP

Fauna: *Lagopus lagopus*, *Pyrhcorax graculus*

Layer: 14–15

Date: LP Aurignaco-Périgordien

Fauna: *Pyrhcorax graculus*

Layer: 17

Date: LP Aurignacian S1

Fauna: *Aquila chrysaetos*, *Columba livia*, *Pyrhcorax graculus*, *Montifringilla nivalis*,
Coccothraustes coccothraustes

Layer: 19

Date: LP Aurignacian II (Arcy interstadial)

Fauna: *Montifringilla nivalis*

Layer: 21

Date: LP Aurignacian I $14C=27,890\pm2,000$ BP

Fauna: *Pyrhcorax graculus*

Det.: Bouchud

Stored: Musée de Préhistoire, Les Eyzies ?

FR 27 Abri du Sault (Ain)

Type: c

Source: Wolf 1938–41

Layer: D I

Date: LP Magdalenian

Fauna: *Tetrao urogallus*

Layer: D II

Date: LP Magdalenian

Fauna: *Perdix perdix*

Det.: Gaillard

FR 28 Abri supérieur de Colombier (Ardèche)

Type: c

Source: Mourer-Chauviré 1975a

Date: LP LG Magdalenien supérieur

Fauna: *Lagopus lagopus*, *Perdix perdix*, cf. *Cinclus cinclus*, *Prunella collaris*, *Pyrhcorax graculus*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 29 Adaouste (Bouches-de-Rhône)

Alt.: 400

Type: c

Sources: Bouchud 1953b; Defleur et al. 1994

Layer: 10a-17

Date: LP Magdalenian III-V, Layer 17 = Magd. III, Layer 12, 14 = Magd. V, Layer 10a, 11 = Magd. Layer 12=12,280±190, Layer 17=12,760±190 BP

Fauna: *Pyrhcorax pyrhcorax*

Det.: Bouchud

Layer: II

Date: LP Mousterian "Würm I"

Fauna: *Alectoris graeca*, *Pyrhcorax graculus*

Layer: III

Date: LP Mousterian "Würm I"

Fauna: *Alectoris graeca*, *Columba livia*, *Pyrhcorax graculus*, *Corvus corax*

Layer: IV

Date: LP Mousterian "Würm I"

Fauna: *Alectoris graeca*, *Columba livia*, cf. *Prunella collaris*, *Pyrhcorax graculus*, *Corvus corax*

Layer: III/IV

Date: LP Mousterian "Würm I"

Fauna: *Alectoris graeca*, *Columba livia*, *Pyrhcorax graculus*

Det.: Vilette

Stored: Département des Sciences de la Terre, Lyon (partly); Musée d'Histoire Naturelle/Université de Marseille ?

FR 30 Aldène (Hérault)

Alt.: 300

Type: c

Sources: Milne-Edwards 1875a,b; Mourer-Chauviré 1975a; Paris 1912; Wolf 1938–41

Date: ?

Fauna: *Accipiter nisus*, *Perdix perdix*, *Phasianus colchicus*, *Columba* sp., *Pyrhcorax pyrhcorax primigenius*

Det.: Milne-Edwards, Serres, Rivière

Notes: *Phasianus colchicus* according to Serres; Milne-Edwards (1875a,b) thought it likely that the *Perdix* remains reported from this site by Serres were actually *Lagopus*.

Layer: 1

Date: LP "Würm"

Fauna: *Pyrhcorax* cf. *graculus*

Layer: 2

Date: LP "Würm"

Fauna: *Pyrhcorax* cf. *graculus*

Layer: 3

Date: LP "Würm"

Fauna: *Columba livia*, *Turdus merula*?, *Garrulus glandarius*, *Pyrhcorax* cf. *graculus*

Layer: 4

Date: LP "Würm"

Fauna: *Columba livia*, *Lullula arborea*?, *Pyrhcorax* cf. *pyrhcorax*, *Pyrhcorax* cf. *graculus*

Layer: A2

Date: MP "Riss moyen"

Fauna: *Pyrhcorax graculus* cf. *vetus*

Layer: B

Date: MP "Riss moyen"

Fauna: *Perdix* cf. *palaeoperdix*, *Columba* cf. *livia*, *Pyrhcorax* cf. *pyrhcorax*, *Pyrhcorax graculus* cf. *vetus*

Layer: ?

Date: MP "Riss moyen"

Fauna: *Columba* cf. *livia*, *Pyrhcorax graculus* cf. *vetus*, *Corvus monedula*

Det.: Mourer-Chauviré

Stored: Musée d'Anthropologie Préhistorique de Monaco

Notes: also known as Fauzan/Fausan, Grotte de Minerve, Grotte de Vieulac and Vienbaca

FR 31 "Aude" (Aude)

Sources: Lambrecht 1933; Milne-Edwards 1867–71, 1875a,b; Paris 1912

Fauna: *Bubo bubo*, *Buteo buteo*

Det.: Serres

Notes: "Grottes de Aude"; these records were cited by Milne-Edwards after Serres, but must be considered very uncertain

FR 32 Aurensan inférieure (Hautes-Pyrénées)

Alt.: 570

Type: c

Sources: Bahn 1983; Clot & Mourer-Chauviré 1986 (Bouchud 1972, Clot 1983)

Date: LP Magdalenian moyen (IV-V) 14C=13,910±230–14,280±300

Fauna: *Anas platyrhynchos*, *Aythya nyroca*, *Mergus albellus*, *Gypaetus barbatus*, *Aquila chrysaetos*, *Falco tinnunculus*, *Lagopus lagopus*, *Perdix perdix*, *Coturnix coturnix*, *Haematopus ostralegus*, *Larus audouinii*, *Columba palumbus*, *Asio otus*, *Hirundo rustica*, *Monticola saxatilis*, *Montifringilla nivalis*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*, *Corvus corone*

Det.: Bouchud

FR 33 Aurensan supérieur (Hautes-Pyrénées)

Alt.: 595

Type: c

Sources: Bouchud 1972; Clot & Mourer-Chauviré 1986; Mourer-Chauviré 1975a; Philippe 1852; Wolf 1938–41

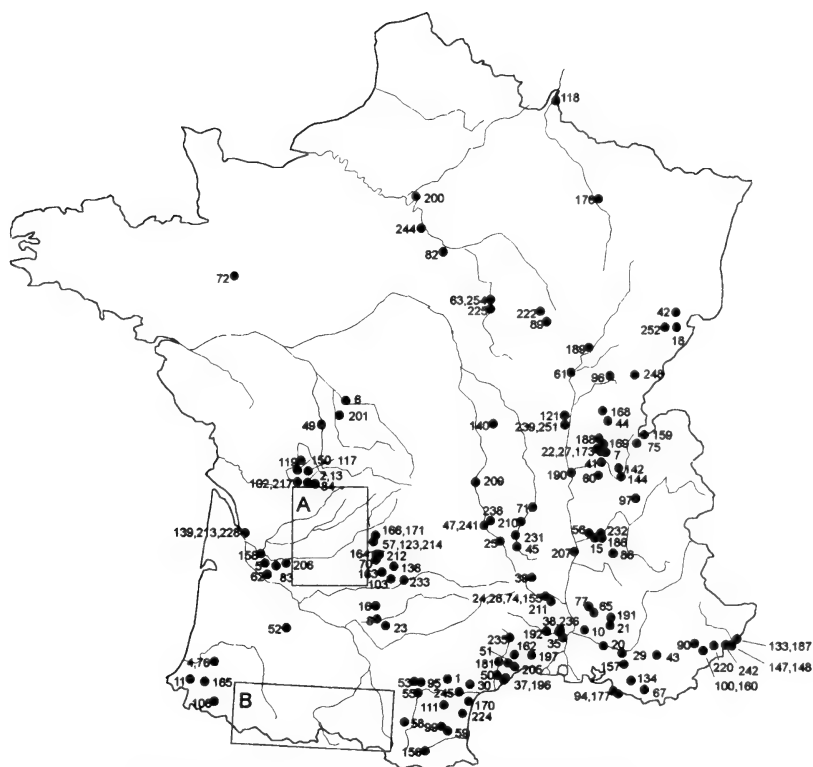
Date: LP Würm I-II? (Riss/Würm ancien)

Fauna: *Anser* sp., *Anas platyrhynchos*, *Lagopus lagopus*, *Tetrao urogallus*, *Coturnix coturnix*, *Asio otus*, *Monticola saxatilis*, *Pica pica*

Det.: Bouchud

Stored: Musée de Bagnères de Bigorre

Notes: "Collection Philippe" reidentified by Bouchud, 11 spp. mentioned by Philippe eliminated.



Not exactly localized sites: 34,40,79,153,167,199,208,230,234,237,257

[See pp. 129 and 152 for enlarged sections A and B.]

Date: LP Würm I-II? (Riss/Würm ancien)

Fauna: *Anser anser*, *Tadorna tadorna*, *Mergus serrator*, *Gyps fulvus*, *Lagopus mutus*, *Lagopus* sp., *Rallus aquaticus*, *Asio flammeus*, *Melanocorypha calandra*, *Corvus corone*

Det.: Mourer-Chauviré

Date: LP Würm I-II? (Riss/Würm ancien)

Fauna: *Calonectris diomedea*, *Aquila chrysaetos*, *Lagopus* cf. *lagopus*, *Tetrao tetrix*, *Tetrao urogallus*, *Perdix perdix*, *Crex crex*, *Oenanthe oenanthe*, *Turdus viscivorus*, *Pyrhcorax graculus*

Det.: Mourer-Chauviré

Stored: Musée de Bordeaux and Musée d'Histoire Naturelle, Lyon

Notes: also known as Ornessant

FR 34 Auzières II à Methamis (Vaucluse)

Type: c

Source: Crégut-Bonnouret et al. 1983

Date: LP

Fauna: *Pyrhcorax graculus*

Det.: Mourer-Chauviré

FR 35 Avignon (Vaucluse)

Sources: Lambrecht 1933; Milne-Edwards 1875a,b

Fauna: *Glaucidium passerinum*

Det.: Milne-Edwards

Notes: the name of this site may be a typographical error for Aurignac (FR 154) since no Pleistocene site is known from Avignon (C. Mourer-Chauviré *in litt.*); the locality is cited by Milne-Edwards both as Avignon (1875b) and Aurignac (1875a), but it does not occur in the concluding list of species from this site in the latter publication

FR 36 Badegoule (Dordogne)

Alt.: 190

Type: c

Source: Cheynier 1949

Date: LP Solutrean-Badegoulien

Fauna: *Aquila* sp., *Falco* sp., *Pyrhcorax graculus*

FR 37 Balaruc VII (Hérault)

Type: c

Source: Brugal 1981

Date: MP "Mindel/Riss-Early Riss"

Fauna: *Coturnix coturnix*, *Columba livia*, *Riparia riparia*, *Turdus iliacus* ?

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 38 Balauzière (Gard)

Type: c

Sources: Mourer-Chauviré 1975a; Musil 1980b

Layer: 4

Date: LP "Interwürm II/III"

Fauna: *Alectoris graeca*, *Columba livia*, *Columba palumbus*, *Alauda* sp., *Turdus* sp.,
Pyrrhonorax pyrrhonorax

Layer: 5

Date: LP "Würm IIb"

Fauna: *Columba oenas*, *Prunella collaris*, *Turdus* sp., *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Pica pica*, *Corvus frugilegus*, *Garrulus glandarius*

Layer: 6

Date: LP "Würm IIb"

Fauna: *Prunella collaris*, *Turdus* sp., *Pyrrhonorax pyrrhonorax*, *Pica pica*

Layer: 7

Date: LP "Interwürm IIa/IIb"

Fauna: *Aquila chrysaetos*, *Columba oenas*, *Columba palumbus*, *Prunella collaris*

Layer: 8

Date: LP "Interwürm IIa/IIb"

Fauna: *Lagopus* sp., *Columba livia*

Layer: unstratified

Date: LP

Fauna: *Cygnus cygnus*, *Tetrao tetrix*, *Perdix perdix*, *Gypaetus barbatus*, *Aquila chrysaetos*, *Bubo bubo*, *Garrulus glandarius*

Layer: II

Date: LP/Hol

Fauna: *Aythya fuligula*, *Aquila chrysaetos*, *Lagopus* cf. *lagopus*, *Tetrao tetrix*, *Alectoris graeca*, *Alectoris barbara*, *Perdix perdix*, *Gallus gallus*, *Columba livia*, *Turdus* cf. *torquatus*, *Turdus merula*, *Turdus viscivorus*, *Montifringilla nivalis*, *Pyrrhonorax pyrrhonorax primigenius*, *Pyrrhonorax graculus*

Layer: III

Date: LP Aurignacian "Würm III"

Fauna: *Anas platyrhynchos*, *Aquila chrysaetos*, *Falco vespertinus*, *Falco tinnunculus*, *Lagopus* cf. *lagopus*, *Tetrao tetrix*, *Alectoris graeca*, *Alectoris barbara*, *Gallus gallus*, *Columba livia*, *Dendrocopos major*, *Galerida cristata*, *Lullula arborea*, *Oenanthe oenanthe*, *Turdus pilaris*, *Turdus merula*, *Pica pica*, *Pyrrhonorax pyrrhonorax primigenius*, *Pyrrhonorax graculus*, *Fringilla coelebs*, *Montifringilla nivalis*

Layer: IV

Date: LP Mousterian "Inter Würm II-III"

Fauna: *Columba livia*, *Pyrrhonorax graculus*

Layer: V

Date: LP Mousterian "Würm IIb"

Fauna: *Falco subbuteo*, *Alectoris barbara*, *Bubo bubo*, *Galerida cristata*, *Lullula arborea*, *Alauda arvensis*, *Hirundo daurica*, *Oenanthe oenanthe*, *Turdus pilaris*, *Pica pica*, *Pyrrhonorax pyrrhonorax primigenius*, *Pyrrhonorax graculus*, *Corvus frugilegus*, *Montifringilla nivalis*

Layer: VI

Date: LP Mousterian "Würm IIb"

Fauna: *Lullula arborea*, *Oenanthe oenanthe*, *Pyrrhonorax pyrrhonorax primigenius*, *Pyrrhonorax graculus*, *Montifringilla nivalis*

Layer: VII

Date: LP Mousterian "Inter Würm IIa-IIb"

Fauna: *Columba livia*, *Pyrrhcorax pyrrhcorax primigenius*, *Pyrrhcorax graculus*,
Montifringilla nivalis

Layer: VIII

Date: LP Mousterian "Inter Würm IIa-IIb"

Fauna: *Columba livia*, *Lullula arborea*, *Pyrrhcorax graculus*

Layer: Déblais

Date: LP

Fauna: *Cygnus cygnus*

Det.: Mourer-Chauviré

Stored: Musée d'Histoire Naturelle de Nîmes

FR 39 Balazuc (Ardèche)

Type: c

Source: Mourer-Chauviré 1975a

Layer: 2-3

Date: LP Würm II Mousterian

Fauna: *Anas crecca*, *Anas clypeata*, *Aythya nyroca*, *Gypaetus barbatus*, *Falco tinnunculus*, *Lagopus* sp., *Tetrao tetrix*, *Perdix perdix*, *Gallinula chloropus*, cf. *Calidris ferruginea*, *Columba livia*, *Strix aluco*, cf. *Alauda arvensis*, *Turdus merula*,
Pyrrhcorax pyrrhcorax, *Pyrrhcorax graculus*, *Corvus corax*

Det.: Mourer-Chauviré

Stored: Musée de Préhistoire d'Orgnac ?

FR 40 Balme de Glos (Isère)

Type: c

Sources: Bouchud 1956; Mourer-Chauviré 1979c

Layer: 10-11

Date: LP LG Dryas 2 ? Romanello-Azilian II

Fauna: *Anas platyrhynchos*, *Anas querquedula*?, *Lagopus lagopus*, *Lagopus mutus*,
Tetrao urogallus, *Numenius tenuirostris* ?, *Turdus merula*, *Pyrrhcorax graculus*

Det.: Bouchud

Stored: Laboratoire de Géologie de l'Université de Grenoble/Musée d'Histoire Naturelle, Grenoble ?

FR 41 Balme-les-Grottes (Isère)

Type: c

Sources: Chauviré 1963; Lortet & Chantre 1872; Mourer-Chauviré 1975a, 1979c;
Wolf 1938-41 (Chantre 1866, Jacquemet 1895)

Layer: Upper

Date: LP LG Romanello-Azilian II (Proto-Azilian) Dryas 2 ?

Fauna: *Anas crecca*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Alectoris graeca*, *Coturnix coturnix*, *Crex crex*, *Scolopax rusticola*, *Columba* cf. *oenas*, *Columba palumbus*, *Apus melba*, *Hirundo rustica*, *Motacilla alba*, *Turdus merula*, *Fringilla coelebs*,
Pyrrhula pyrrhula, *Pyrrhcorax graculus*, *Corvus monedula*, *Corvus corone*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

Notes: also known as Grotte de la Balme

FR 42 Baume de Gonvillars (Haute-Saône)

Type: c

Source: Mourer-Chauviré 1975a

Layer: XII

Date: LP/Hol "Mesolithique"

Fauna: *Anas crecca*, *Falco tinnunculus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Coturnix coturnix*, *Crex crex*, *Gallinago gallinago*, *Scolopax rusticola*, *Asio flammeus*, *Otus scops*, *Caprimulgus ruficollis*, *Dendrocopos major*, *Dendrocopos leucotos*, *Turdus pilaris*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Fringilla coelebs*, *Carduelis carduelis*, *Coccothraustes coccothraustes*, *Sturnus roseus*, *Garrulus glandarius*, *Pica pica*

Layer: XIII

Date: LP UP

Fauna: *Anas platyrhynchos*, *Bucephala clangula*, *Buteo buteo*, *Accipiter nisus*, *Falco tinnunculus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Coturnix coturnix*, *Crex crex*, *Fulica atra*, *Scolopax rusticola*, *Columba palumbus*, *Asio otus*, *Asio flammeus*, *Strix aluco*, *Dendrocopos major*, *Turdus pilaris*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Fringilla coelebs*, *Carduelis carduelis*, *Carduelis cannabina*, *Coccothraustes coccothraustes*, *Pica pica*, *Nucifraga caryocatactes*, *Corvus monedula*

Layer: XIV

Date: LP Mousterian

Fauna: *Gallus gallus*, *Turdus viscivorus*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 43 Baume de Fontbrégoua (Var)

Alt.: 400

Type: c

Source: Vilette 1983

Layer: 70–75

Date: LP LG Magdalenian 14C=11,200±150 BP

Fauna: *Garrulus glandarius*, *Pyrhonorax graculus*

Det.: Vilette

Stored: Musée d'Histoire Naturelle/Université de Marseille ?

FR 44 Baume de Gigny (Jura)

Type: c

Sources: Mourer-Chauviré 1975a, 1980b, 1989b

Layer: IV

Date: LP LG? Bölling? "Mesolithique" (Epipaleolithic) 14C=12,370±460 and 13,620±480 BP (base).

Fauna: *Anas crecca*, *Lagopus lagopus*, *Lagopus mutus*, *Lagopus* sp., *Tetrao tetrix*, *Perdix perdix*, *Coturnix coturnix*, *Crex crex*, *Gallinago media*, *Turdus pilaris*, *Turdus iliacus*, *Nucifraga caryocatactes*, *Corvus corax*

Layer: V

Date: LP Gigny III stadial, $14C = 22,430 \pm 500$ BP

Fauna: *Anas crecca*, *Aythya nyroca*, *Clangula hyemalis*, *Falco columbarius*, *Lagopus* sp., *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Coturnix coturnix*, *Porzana parva*, *Gallinago gallinago*, *Gallinago media*, *Asio flammeus*, *Strix aluco*, *Galerida cristata*, *Lullula arborea*, *Hirundo rupestris*, *Anthus spinoletta*, *Montifringilla nivalis*, *Corvus corax*

Layer: VI

Date: LP Gigny III Stadial ca. 23–25,000 BP

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Anas querquedula*, *Aquila chrysaetos*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Lagopus* sp., *Tetrao tetrix*, *Gallinago media*, *Tringa erythropus*, *Nyctea scandiaca*, *Asio flammeus*, *Hirundo rupestris*, *Cinclus cinclus*, cf. *Saxicola rubetra*, *Oenanthe oenanthe*, *Turdus pilaris*, *Montifringilla nivalis*, *Pica pica*, *Pyrrhocorax graculus*, *Corvus monedula*, *Corvus corax*

Layer: VII

Date: LP end Arcy/Denekamp interstadial, $14C = 27,000 \pm 1,400$ BP

Fauna: *Lagopus* sp., *Tetrao tetrix*, *Scolopax rusticola*, *Delichon urbica*, *Turdus pilaris*, *Turdus iliacus*

Layer: VIII

Date: LP Arcy/Denekamp/Stillfried B $14C = 29,500 \pm 1400, 28,500 \pm 1400$ BP. Mousterian.

Fauna: *Anas platyrhynchos*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Porzana porzana*, *Nyctea scandiaca*, *Hirundo rupestris*, *Turdus pilaris*, *Cinclus cinclus*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*, *Corvus corax*

Layer: IX

Date: LP Gigny II stadial $14C > 31,500$ BP (ca 30–35,000 BP)

Fauna: *Anas platyrhynchos*, *Lagopus lagopus*, *Lagopus mutus*, *Lagopus* sp., *Tetrao tetrix*, *Galerida cristata*, *Lullula arborea*, *Cinclus cinclus*, *Sylvia atricapilla*, *Pyrrhocorax graculus*, *Corvus corax*

Layer: X

Date: LP Gigny II stadial, ca. 35,000 BP

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Falco tinnunculus*, *Lagopus* sp., *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Gallinago gallinago*, *Gallinago media*, *Limosa limosa*, *Tringa erythropus*, *Galerida cristata*, *Lullula arborea*, *Cinclus cinclus*, *Pyrrhocorax graculus*, *Corvus corax*

Layer: XI

Date: LP Gigny II stadial, ca. 35–40,000 BP $14C > 33,000$ BP (XI) (XI = Mousterian final)

Fauna: *Aythya ferina*, *Lagopus* sp., *Lagopus lagopus*, *Lagopus mutus*, *Coturnix coturnix*, *Charadrius morinellus*, *Gallinago gallinago*, *Gallinago media*, *Galerida cristata*, *Hirundo rupestris*, *Cinclus cinclus*, *Prunella collaris*, *Turdus pilaris*, *Turdus iliacus*, *Coccothraustes coccothraustes*, *Petronia petronia*, *Montifringilla nivalis*, *Pica pica*, *Pyrrhocorax graculus*

Layer: IX-XI

Date: LP Gigny II stadial, ca. 30–40,000 BP 14C>31,500 BP (IX) (XI = Mousterian final)

Fauna: *Podiceps auritus*, *Anas platyrhynchos*, *Lagopus lagopus*, *Lagopus mutus*, *Lagopus* sp., *Tetrao tetrix*, *Perdix perdix*, *Gallinago media*, *Asio otus*?, *Cinclus cinclus*, *Pyrrhcorax graculus*, *Corvus corax*

Layer: XII

Date: LP Gigny II Stadial ca. 35–40,000 BP

Fauna: *Lagopus mutus*, *Lagopus* sp., *Cinclus cinclus*

Layer: XIII

Date: LP Gigny II stadial, ca. 35–40,000 BP

Fauna: *Falco peregrinus*, *Lagopus* sp., *Galerida cristata*

Layer: XIV

Date: LP Gigny II stadial, ca. 40–45,000 BP

Fauna: *Lagopus* sp., *Cinclus cinclus*, *Sylvia atricapilla*, *Pica pica*, *Pyrrhcorax graculus*

Layer: XV

Date: LP Gigny II stadial, ca. 40–45,000 BP, 14C>32,300 BP. Mousterian.

Fauna: *Cygnus cygnus*, *Anas platyrhynchos*, *Falco* cf. *subbuteo*, *Falco tinnunculus*, *Lagopus* sp., *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Perdix perdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Gallinago gallinago*, *Alle alle*, *Aegolius funereus*?, *Turdus pilaris*, *Montifringilla nivalis*, *Pica pica*, *Pyrrhcorax graculus*, *Corvus monedula*, *Corvus corax*

Layer: XVI

Date: LP St Julien Interstadial, ca. 45–50,000 BP ?, Mousterian

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Aythya ferina*, *Falco vespertinus*, *Falco tinnunculus*, *Lagopus* sp., *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Perdix perdix*, *Coturnix coturnix*, *Grus grus*, *Asio otus*, *Galerida cristata*, *Lullula arborea*, *Oenanthe oenanthe*, *Turdus pilaris*, *Turdus torquatus*, *Montifringilla nivalis*, *Pica pica*, *Pyrrhcorax graculus*, *Corvus monedula*

Layer: XVIa

Date: LP St Julien Interstadial, ca. 45–50,000 BP ?

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Falco columbarius*, *Falco vespertinus*, *Lagopus* sp., *Perdix perdix*, *Coturnix coturnix*, *Charadrius hiaticula*?, *Gallinago gallinago*, *Alauda arvensis*, *Hirundo rupestris*, *Fringilla coelebs*, *Montifringilla nivalis*, *Pica pica*, *Pyrrhcorax graculus*

Layer: XVIIb

Date: LP end Gigny Ib stadial, ca. 50,000 BP ?

Fauna: *Lagopus lagopus*, *Lagopus* sp., *Tetrao tetrix*, *Perdix perdix*, *Lullula arborea*, *Hirundo rupestris*, *Garrulus glandarius*, *Pica pica*, *Pyrrhcorax graculus*

Layer: XVII

Date: LP Gigny Ib stadial, ca. 50–55,000 BP ?

Fauna: *Falco* cf. *subbuteo*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Bubo bubo*, *Pyrrhcorax graculus*

Layer: XIX

Date: LP Gigny Ia stadial, ca. 55,000 BP ?, Mousterian

Fauna: *Anas platyrhynchos*, *Aquila chrysaetos*, *Lagopus mutus*, *Lagopus lagopus*, *Tetrao tetrix*, *Tetrao urogallus*, *Perdix perdix*, *Columba cf. oenas*, *Nyctea scandiaca*, *Pyrhcorax graculus*, *Corvus corax*

Layer: XX

Date: LP Beginning Stadial Gigny Ia, ca. 60,000 BP, Mousterian

Fauna: *Melanitta nigra*, *Aquila chrysaetos*, *Tetrao tetrix*, *Tetrao urogallus*, *Lullula arborea*, *Garrulus glandarius*, *Pica pica*, *Pyrhcorax graculus*, *Corvus corone*, *Corvus corax*, *Coccothraustes coccothraustes*

Layer: XXI

Date: MP Cressia interglacial + end Suran stadial, IS 5e/6 = U/Th=145,000–15,000+18000 ESR=145,000–45,000+66,000

Fauna: *Perdix perdix*, *Picus canus*, *Pyrhcorax graculus*, *Corvus corax*

Layer: XXIIb

Date: MP end Suran stadial, IS 6 (succeeding interglacial = U/Th=145,000–15,000+18,000 ESR=145,000–45,000+66,000 BP). Acheulean.

Fauna: *Ciconia ciconia*

Layer: XXIII

Date: MP Interstadial in Suran stadial, IS 6 (succeeding interglacial=U/Th=145,000–15,000+18,000 ESR=145,000–45,000+66,000)

Fauna: *Falco tinnunculus*

Layer: XXVI

Date: MP Suran stadial, IS 6 (succeeding interglacial = U/Th=145,000–15,000+18,000 ESR=145,000–45,000+66,000 BP)

Fauna: *Pyrhcorax graculus*

Det.: Mourer-Chauviré

Stored: Musée de Lons-le-Saunier

Notes: also known as La Baume

FR 45 Baume-Loire (Haute-Loire)

Alt.: 800

Type: c

Source: Bouchud 1966

Date: LP LG Magdalenian final-Azilian

Fauna: *Coturnix coturnix*, *Hirundo rupestris*, *Monticola saxatilis*, *Sturnus vulgaris*

Det.: Bouchud

FR 47 Blassac (Haute-Loire)

Type: c

Source: Bouchud 1955c

Date: LP LG Azilian

Fauna: *Accipiter nisus*, *Lagopus mutus?*, *Perdix perdix*, *Alauda sp.*, *Serinus sp.*, *Pyrhcorax graculus*

Det.: Bouchud

FR 48 Bois du Cantet (Hautes-Pyrénées)

Alt.: 380

Type: c

Sources: Clot et al. 1984; Clot & Mourer-Chauviré 1986

Layer: Boyau 7

Date: LP LG 14C=10,920±160 BP

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Mergus merganser*, *Accipiter nisus*, *Falco subbuteo*, *Falco tinnunculus*, *Lagopus* sp., *Tetrao tetrix*, *Perdix perdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Crex crex*, *Charadrius hiaticula*, *Larus canus*, *Alle alle*, *Columba livia*, *Columba palumbus*, *Asio flammeus*, *Apus apus*, *Upupa epops*, *Lullula arborea*, *Alauda arvensis*, *Hirundo rupestris*, *Hirundo rustica*, *Cinclus cinclus*, *Saxicola rubetra*, *Oenanthe oenanthe*, *Monticola saxatilis*, *Turdus pilaris*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Parus cristatus*, *Garrulus glandarius*, *Pica pica*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*, *Corvus corax*, *Fringilla coelebs*, *Montifringilla nivalis*

Layer: Secteur 1

Date: LP LG Magdalenian 14C=13,060±430 BP

Fauna: *Anas crecca*, *Lagopus* sp., *Tetrao tetrix*, *Perdix perdix*, *Columba* cf. *oenas*, *Nyctea scandiaca*?, *Hirundo rustica*, *Turdus pilaris*?, *Turdus iliacus*, *Pica pica*, *Pyrrhocorax graculus*, *Pyrrhocorax pyrrhocorax*, *Montifringilla nivalis* ?

Layer: Secteur 2

Date: LP Magdalenian 14C=13,370±270 BP

Fauna: *Anas platyrhynchos*, *Aquila chrysaetos*, *Coccothraustes coccothraustes*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*, *Corvus corax*

Layer: Déblais

Date: LP LG Magdalenian

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Falco subbuteo*, *Perdix perdix*, *Turdus merula*, *Pica pica*, *Pyrrhocorax graculus*, *Pyrrhocorax pyrrhocorax*, *Corvus corax*

Det.: Mourer-Chauviré

Stored: Musée de Bagnères-de-Bigorre ?

Notes: also known as Espèche, Grotte d'Espèche

FR 49 Bois-Ragot (Vienne)

Type: c

Source: Chollet et al. 1979

Layer: BR3

Date: LP LG Azilian 14C=8,800±220 BP

Fauna: *Nyctea scandiaca*

Layer: BR4b

Date: LP LG Azilian 14C=10,990±160 BP

Fauna: *Nyctea scandiaca*

Layer: BR5b

Date: LP LG Late Magdalenian 14C=11,030±140 BP

Fauna: *Nyctea scandiaca*

Layer: BR6

Date: LP LG Late Magdalenian 14C=10,180±160 BP

Fauna: *Nyctea scandiaca*

Det.: Delpech

Stored: Institut du Quaternaire, Université de Bordeaux I

Notes: also known as Gouex

FR 50 Bois-de-Brousses (Hérault)

Type: c

Sources: Vilette 1983, 1984

Layer: 1A

Date: LP Magdalenian moyen 14C=15,800±300 BP

Fauna: *Aythya nyroca*, *Pluvialis* sp., *Actitis hypoleucos*, *Columba* sp., *Nyctea scandiaca*, *Hirundo rupestris*, cf. *Turdus merula*, cf. *Turdus viscivorus*, *Pyrrhocorax graculus*, *Corvus corax*

Layer: 2B

Date: LP Solutrean

Fauna: *Anas platyrhynchos*, *Aythya ferina*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus* sp., *Perdix perdix*, cf. *Gallinago media*, *Scolopax rusticola*, cf. *Calidris temminckii*, *Philomachus pugnax*, *Columba* sp., *Otus scops*, *Hirundo rupestris*, *Cinclus cinclus*, *Pyrrhocorax graculus*, cf. *Corvus corone*

Det.: Vilette

FR 51 Bourgade (Hérault)

Type: o

Sources: Milne-Edwards 1867–71; Mourer-Chauviré 1976a, 1980b

Date: EP "Pleistocene Moyen II, early Mindel", "Günz", MNQ 20

Fauna: *Nyctea scandiaca*, *Perdix palaeoperdix*, Alaudidae

Det.: Mourer-Chauviré

Stored: Université des Sciences et Techniques du Languedoc

Notes: Serres & Jeanjean reported cf. *Falco rusticolus* from this site, according to Milne-Edwards (1867–71)

FR 52 Brette 2 à Condom (Gers)

Type: c

Source: Cantet et al. 1978

Date: LP LG Magdalenian

Fauna: *Tetrao tetrax*?

Det.: Mourer-Chauviré

Stored: Musée de Bagnères-de-Bigorre ?

Notes: more birds present, but probably Holocene (disturbed site)

FR 53 Canecaude I (Aude)

Type: c

Sources: Vilette 1981a, 1983

Layer: II 1

Date: LP Magdalenian moyen 14C=14,230±160 BP

Fauna: *Lagopus* sp.

Layer: II 2

Date: LP Magdalenian moyen 14C=14,230±160 BP

Fauna: *Lagopus* sp., *Scolopax rusticola*, *Nyctea scandiaca*

Layer: III

Date: LP Aurignacian 14C=22,980±330 BP

Fauna: *Pyrrhocorax graculus*

Layer: IV

Date: LP Aurignacian 14C=24,510±400 BP

Fauna: *Perdix perdix*

Det.: Vilette

Stored: Laboratoire de Préhistoire et de Palethnologie, Dépôt de Fouilles Préhistoriques, Carcassonne

FR 54 Cap de la Biehle (Hautes-Pyrénées)

Alt.: 525

Type: c

Sources: Clot & Mourer-Chauviré 1986; Mourer-Chauviré 1975a

Layer: 4b

Date: MP "Riss II or III?"

Fauna: *Anas platyrhynchos*, *Aegypius monachus*, *Aquila chrysaetos*, *Falco peregrinus*, *Falco tinnunculus atavus*, *Tetrao tetrix*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Pluvialis squatarola*, *Gallinago gallinago*, *Larus canus*, *Columba oenas*, *Bubo bubo*, *Picus canus*, *Lullula arborea*, *Hirundo rupestris*, *Turdus pilaris*, *Turdus iliacus*, *Petronia petronia*, *Pyrrhocorax pyrrhocorax*, *Corvus* cf. *antecorax*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

Notes: also known as Cap de la Vielle/Bielle, Grotte de Nestier; *Pica pica* excluded by Clot & Mourer-Chauviré 1986

FR 55 Carcassonne (Aude)

Source: Lambrecht 1933

Fauna: *Bubo bubo*, *Buteo* sp., *Coturnix coturnix*

FR 56 Carrière Fournier (Drôme)

Type: c

Sources: Mourer-Chauviré 1972c, 1975a; Musil 1980b

Date: MP "Riss"

Fauna: *Falco tinnunculus atavus*, *Gallus gallus*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

Notes: also known as Fournier; Mourer-Chauviré (1972c) reports *Tetrao tetrix* instead of *Gallus gallus*

FR 57 Carrière de Baudran (Corrèze)

Type: o

Source: Philippe et al. 1980

Date: MP

Fauna: *Galerida cristata*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 58 Cauna de Belvis (Aude)

Alt.: 960

Type: c

Sources: Clot & Mourer-Chauviré 1986; Vilette 1981a, 1983

Layer: C 1

Date: LP LG Magdalenian superieur

Fauna: *Lagopus* sp., *Coturnix coturnix*, *Turdus pilaris*, *Turdus viscivorus*, *Emberiza hortulana*

Layer: C 2

Date: LP LG Magdalenian superieur

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Lagopus* sp., *Perdix perdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Porzana porzana*, *Crex crex*, *Lymnocyptes minimus*, *Scolopax rusticola*, *Philomachus pugnax*, *Athene noctua*, *Otus scops*, *Asio flammeus*, *Dendrocopos major*, *Galerida cristata*, *Hirundo daurica*, *Hirundo rupestris*, *Motacilla alba*, cf. *Saxicola rubetra*, *Turdus torquatus*, *Turdus viscivorus*, *Garrulus glandarius*, *Pyrhcorax graculus*, *Emberiza hortulana*, *Coccothraustes coccothraustes*

Layer: C 3

Date: LP LG Magdalenian superieur 14C=12,270±280 BP

Fauna: *Tetrao urogallus*, *Lagopus* sp., *Perdix perdix*, *Coturnix coturnix*, cf. *Calidris alpina*, *Dendrocopos major*, *Hirundo daurica*, *Turdus torquatus*, *Turdus pilaris*, *Turdus viscivorus*, *Sturnus vulgaris*, *Pyrhcorax graculus*, *Montifringilla nivalis*

Layer: C 4

Date: LP LG Magdalenian superieur

Fauna: *Lagopus* sp.

Layer: C 6

Date: LP LG Magdalenian superieur

Fauna: *Pyrhcorax graculus*

Layer: C 7

Date: LP Châtelperronian 14C=35,425±1140 BP

Fauna: *Falco subbuteo*, *Tetrao urogallus*, *Nyctea scandiaca*, *Turdus merula*, *Pyrhcorax graculus*

Det.: Vilette

Stored: Laboratoire de Préhistoire et de Palethnologie, Dépôt de Fouilles Préhistoriques, Carcassonne

FR 59 Caune de l'Arago (Pyrénées-Orientale)

Alt.: 210

Type: c

Sources: Clot & Mourer-Chauviré 1986; Mourer-Chauviré 1975a, 1981

Date: MP "Mindel" ca. 400–450 KA BP?

Fauna: *Anas* cf. *platyrhynchos*, *Mergus merganser*, *Aegypius monachus*, *Gypaetus barbatus*, *Aquila* cf. *chrysaetos*, cf. *Hieraaetus fasciatus*, *Falco tinnunculus*, *Alectoris graeca*, *Alectoris* cf. *barbara*, *Perdix perdix*, *Gallinago gallinago*, *Columba*

livia cf. *minuta*, *Columba oenas*, *Bubo*/*Nyctea* sp., *Asio flammeus*, *Aegolius funereus*, *Apus melba*, *Turdus pilaris*, *Turdus viscivorus*, *Ficedula albicollis*, *Coccothraustes coccothraustes*, *Garrulus glandarius*, *Pica pica*, *Pyrrhocorax pyrrhocorax primigenius*, *Pyrrhocorax graculus vetus*, *Corvus corone*, *Corvus* cf. *antecorax*, *Corvus pliocaenus*

Det.: Mourer-Chauviré

Stored: Musée de Préhistoire de Tautavel

Notes: *Corvus pliocaenus* earlier reported as *Corvus corone* (Mourer-Chauviré 1975a)

FR 60 Caverne de Bèthenas supérieure (Isère)

Type: c

Source: Lortet & Chantre 1872

Date: LP

Fauna: *Lagopus lagopus*

FR 61 Caverne de Vergisson (Saône-et-Loire)

Type: c

Source: Lortet & Chantre 1872

Date: LP Mousterian

Fauna: *Lagopus* sp.

FR 62 Caverne de l'Avison (Gironde)

Type: c

Sources: Lambrecht 1933; Milne-Edwards 1867–71; Paris 1912

Fauna: *Coturnix coturnix*

Det.: Billaudel

FR 63 Caverne d'Arcy-sur-Cure (Yonne)

Type: c

Sources: Lambrecht 1933; Milne-Edwards 1867–71; 1875a,b; Mourer-Chauviré 1979b, 1983a; Paris 1912; Wolf 1938–41

Date: LP

Fauna: *Cygnus cygnus*, *Gyps fulvus*

Det.: Milne-Edwards; Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 65 Charasse II (Vaucluse)

Type: c

Source: Mourer-Chauviré 1975a

Layer: Surface

Date: LP/Hol ? "postérieur à Alleröd"

Fauna: *Perdix perdix*, *Otis tarda*, *Bubo bubo*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

Notes: also known as Abri des Roches

FR 67 Cimay à Evenos (Var)

Type: c

Source: Mourer-Chauviré 1975a

Date: MP Early MP "Mindel"

Fauna: cf. *Melanitta fusca*, *Aquila chrysaetos* cf. *bonifaci*, *Accipiter gentilis* cf. *brevi-dactylus*, *Alectoris* cf. *graeca*, *Columba* cf. *livia*, *Athene* cf. *noctua*, *Turdus* cf. *pilaris*, *Pyrhcorax graculus* cf. *vetus*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 68 Comarque (Dordogne)

Type: c

Source: Mourer-Chauviré 1981b

Layer: Divert C

Date: LP UP

Fauna: *Falco tinnunculus*, *Lagopus* sp., *Tetrao tetrix*, *Columba* cf. *livia*, *Nyctea scandiaca*, *Asio otus*, *Turdus viscivorus*, *Pyrhcorax graculus*, *Corvus corax*

Layer: Déblais

Date: LP/Hol

Fauna: *Anas platyrhynchos*, *Falco tinnunculus*, *Lagopus* sp., *Gallus gallus*, *Nyctea scandiaca*, *Bombicilla garrulus*, *Pyrhcorax graculus*

Det.: Mourer-Chauviré

Stored: Musée de Préhistoire, Les Eyzies ??

FR 69 Combe Grenal (Dordogne)

Type: c

Source: Mourer-Chauviré 1975a

Layer: 1

Date: LP MTA Mousterian IS 3 ca. 45 KA BP

Fauna: *Aegyptius monachus*, *Garrulus glandarius*

Layer: 3

Date: LP MTA Mousterian IS 3

Fauna: *Aegyptius monachus*, *Garrulus glandarius*

Layer: 4

Date: LP Typical Mousterian IS 3

Fauna: *Coccothraustes coccothraustes*?

Layer: 6

Date: LP Typical Mousterian IS 3

Fauna: *Tetrao urogallus*, *Perdix perdix*, *Turdus pilaris*, *Garrulus glandarius*

Layer: 7

Date: LP Typical Mousterian IS 3

Fauna: *Pyrhcorax pyrhcorax primigenius*, *Pyrhcorax graculus*

Layer: 8

Date: LP Typical Mousterian IS 3

Fauna: *Coturnix coturnix*, *Pyrhcorax graculus*, *Petronia petronia*

Layer: 9

Date: LP Mousterian IS 3

Fauna: *Falco tinnunculus*

Layer: 10

Date: LP Mousterian IS 3

Fauna: *Pyrhcorax graculus*

Layer: 11

Date: LP Denticulate Mousterian IS 3 14C=39,000±1,500 BP (l. 12)

Fauna: *Pyrhcorax pyrhcorax primigenius*, *Pyrhcorax graculus*

Layer: 14

Date: LP Denticulate Mousterian IS 3

Fauna: *Falco tinnunculus*, *Alauda arvensis*, *Pyrhcorax pyrhcorax primigenius*

Layer: 17

Date: LP Quina Mousterian IS 3

Fauna: *Turdus pilaris*, *Turdus viscivorus*, *Pyrhcorax pyrhcorax primigenius*, *Pyrhcorax graculus*

Layer: 20

Date: LP Denticulate Mousterian IS 3 TL=44,000±4,000 BP

Fauna: *Lagopus lagopus*

Layer: 21

Date: LP Quina Mousterian early IS 3 ca. 65 KA BP

Fauna: *Aegypius monachus?*, *Garrulus glandarius*, *Pyrhcorax graculus*, *Montifringilla nivalis*

Layer: 22

Date: LP Quina Mousterian early IS 3 ca. 65 KA BP

Fauna: *Lagopus* sp., *Tringa totanus*, *Garrulus glandarius*, *Pyrhcorax graculus*

Layer: 23

Date: LP Quina Mousterian IS 4

Fauna: *Aegypius monachus*, *Lagopus lagopus*, *Galerida cristata*, *Turdus viscivorus*, *Pyrhcorax graculus*, *Montifringilla nivalis*

Layer: 24

Date: LP Quina Mousterian IS 4

Fauna: *Lagopus* sp., *Alauda arvensis*, *Hirundo rupestris*, *Montifringilla nivalis*

Layer: 25

Date: LP Quina Mousterian IS 4

Fauna: *Pyrhcorax graculus*, *Corvus corax*, *Montifringilla nivalis*

Layer: 28

Date: LP Typical Mousterian IS 4

Fauna: *Falco tinnunculus*

Layer: 29

Date: LP Typical Mousterian IS 4

Fauna: *Falco tinnunculus*, *Perdix perdix*

Layer: 32

Date: LP Ferrasie Mousterian IS 4

Fauna: *Pyrhcorax graculus*

Layer: 33

Date: LP Ferrasie Mousterian early IS 4

Fauna: *Falco tinnunculus*?

Layer: 35

Date: LP Ferrassie Mousterian early IS 4 ca. 75 KA BP

Fauna: *Aegypius monachus*, *Parus major*, *Serinus citrinella*, *Petronia petronia*, *Montifringilla nivalis*

Layer: 36

Date: LP Typical Mousterian, late IS 5a

Fauna: *Aegypius monachus*, *Pica pica*, *Petronia petronia*, *Montifringilla nivalis*

Layer: 37

Date: LP Typical Mousterian, late IS 5a

Fauna: *Coturnix coturnix*, *Montifringilla nivalis*?

Layer: 38

Date: LP Denticulate Mousterian, late IS 5a

Fauna: *Tetrao tetrix*, *Actitis hypoleucos*, *Alauda arvensis*?, *Passer domesticus*, *Petronia petronia*, *Montifringilla nivalis*

Layer: "sous 38"

Date: LP late IS 5a?

Fauna: *Coturnix coturnix*, *Crex crex*, *Otus scops*, *Aegolius funereus*, *Apus apus*, *Merops apiaster*, *Dendrocopos major*, *Dendrocopos medius*?, *Jynx torquilla*, *Alauda arvensis*?, *Hirundo rupestris*, *Hirundo rustica*, *Delichon urbica*, *Lanius collurio*, *Turdus merula*, *Turdus viscivorus*, *Acrocephalus palustris*?, *Hippolais icterina*, *Sylvia hortensis*, *Sylvia atricapilla*, *Phylloscopus bonelli*, *Parus major*, *Sitta europaea*, *Garrulus glandarius*, *Nucifraga caryocatactes*, *Fringilla coelebs*, *Carduelis flammea*?, *Coccothraustes coccothraustes*?, *Passer domesticus*, *Montifringilla nivalis*

Layer: 39

Date: LP Mousterian, late IS 5a

Fauna: *Monticola solitarius*

Layer: 40

Date: LP Typical Mousterian IS 5a

Fauna: *Turdus viscivorus*?, *Nucifraga caryocatactes*, *Pyrhcorax graculus*

Layer: 41

Date: LP Denticulate Mousterian, late IS 5a

Fauna: *Pyrhcorax pyrrhcorax primigenius*, *Passer domesticus*

Layer: 42–43

Date: LP Typical Mousterian IS 5a

Fauna: *Falco tinnunculus*, *Tetrao tetrix*, *Perdix perdix*, *Melanocorypha calandria*?, *Lulula arborea*, *Alauda arvensis*, *Montifringilla nivalis*, *Pyrhcorax pyrrhcorax primigenius*, *Pyrhcorax pyrrhcorax primigenius*, *Pyrhcorax pyrrhcorax primigenius*

Layer: 43

Date: LP Typical Mousterian Early IS 5a

Fauna: *Alauda arvensis*, *Turdus viscivorus*, *Sylvia atricapilla*, *Carduelis carduelis*?, *Montifringilla nivalis*, *Garrulus glandarius*

Layer: 44

Date: LP Mousterian, late IS 5b

Fauna: *Alauda arvensis*

Layer: 52

Date: LP Typical Mousterian early IS 5c (layer 50 TL=62±7 KA BP)

Fauna: *Aquila chrysaetos*

Layer: 56

Date: MP Riss III Acheulean

Fauna: *Perdix* cf. *palaeoperdix*

Layer: 57

Date: MP Riss III Acheulean

Fauna: *Perdix* cf. *palaeoperdix*

Layer: 58

Date: MP Riss III Acheulean (layer 60 TL=105±14–11,3±13 KA BP)

Fauna: *Aquila chrysaetos*

Det.: Mourer-Chauviré

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 70 Combe-Cullier (Lot)

Type: c

Sources: Delpech 1975, 1983; Mourer-Chauviré 1979c

Layer: 4

Date: LP LG Magdalenian final ? Dryas 2 ?

Fauna: *Lagopus* sp.

Layer: 4'1

Date: LP LG Magdalenian final ? Dryas 2 ?

Fauna: *Lagopus* sp.

Layer: 4'2

Date: LP LG Magdalenian final ? Dryas 2 ?

Fauna: *Lagopus* sp.

Layer: 4''

Date: LP LG Magdalenian final ? Dryas 2 ?

Fauna: *Lagopus* sp.

Layer: 5

Date: LP LG Magdalenian final

Fauna: *Lagopus* sp., *Pyrrhocorax graculus*

Layer: 11

Date: LP Magdalenian 14C=15,030±330 BP

Fauna: *Nyctea scandiaca*, *Alauda arvensis*

Det.: Delpech

Stored: Institut du Quaternaire, Université de Bordeaux I

Notes: also known as Crozo de Gentillo

FR 71 Cottier à Retournac (Haute-Loire)

Alt.: 550

Type: c

Sources: Bouchud & Bouchud 1953b; Mourer-Chauviré 1975a, 1976b

Layer: Upper (= Niveau I)

Date: LP

Fauna: *Lagopus mutus*, *Columba livia*, *Motacilla flava*, *Prunella collaris*, *Turdus torquatus*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Fringilla coelebs*, *Fringilla* sp., *Montifringilla nivalis*

Layer: Lower (= Niveau III?)

Date: LP Niveau III? 14C=19,880–21,100 BP

Fauna: *Lagopus mutus*, *Pyrrhonorax pyrrhonorax*

Det.: Bouchud

Layer: III

Date: LP 14C=19,880–21,100 BP

Fauna: *Falco subbuteo*, *Falco tinnunculus*, *Lagopus mutus*, *Tringa* cf. *nebularia*, *Asio* cf. *flammea*, *Lullula arborea*, *Hirundo rustica*, *Oenanthe oenanthe*, *Turdus viscivorus*, *Coccothraustes coccothraustes*, *Montifringilla nivalis*, *Pyrrhonorax graculus*

Layer: IV

Date: LP

Fauna: *Falco tinnunculus*, *Pyrrhonorax graculus*, *Montifringilla nivalis*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 72 Couloir de Louvern   (Mayenne)

Type: c

Source: Wolf 1938–41

Fauna: *Anas* sp., *Anser* sp., *Mergus* sp.

FR 73 Demoiselles (Dordogne)

Sources: Lambrecht 1933; Milne-Edwards 1875a,b

Fauna: *Falco tinnunculus*

Det.: Milne-Edwards

Notes: also known as Grotte des Demoiselles

FR 74 Deux Avens (Ard  che)

Type: c

Sources: Mourer-Chauvir   1975a, 1979c

Date: LP LG Magdalenian final 14C=12,340  200 BP

Fauna: *T  trao t  trix*, *Gallinago gallinago*, *Anthus spinoletta*, *Troglodytes troglodytes*, *Turdus merula*, *Turdus viscivorus*, *Sylvia atricapilla*, *Phylloscopus collybita*, *Ficedula hypoleuca*, *Sturnus vulgaris*, *Pyrrhonorax graculus*, *Carduelis flammea*, *Emberiza citrinella*

Det.: Mourer-Chauvir  

Stored: Mus  e de Pr  histoire d'Orgnac ?

Notes: also known as Les Deux Avens.

FR 75 Douattes (Haute-Savoie)

Type: c

Sources: Hescheler 1949; Mourer-Chauvir   1979c (Jayet 1943)

Layer: 7

Date: LP LG Terminal Magdalenian Bölling $12,480 \pm 260$ BP

Fauna: *Lagopus lagopus*

Stored: Musée d'Histoire Naturelle, Genève ?

FR 76 Duruthy (Landes)

Alt.: 104

Type: c

Sources: Clot & Mourer-Chauviré 1986; Delpéch 1975, 1983

Layer: 3

Date: LP LG Magdalenian VI 14C = $11,150 \pm 220$ TL = $11,300$ Alleröd (base layer 3 = $12,640$ BP)

Fauna: *Aquila chrysaetos*, *Perdix perdix*, *Grus primigenia*, *Nyctea scandiaca*, *Turdus merula*, *Pyrrhonorax graculus*

Layer: 4

Date: LP Magdalenian IV, Bölling-Pre Bölling, TL = $14,500 \pm 1,450$ BP 14C = $13,510 \pm 120$, $13,840 \pm 210$ BP

Fauna: *Lagopus* sp., *Stercorarius parasiticus*, *Corvus corax*, *Carduelis chloris*

Det.: Delpéch

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 77 Eden-Roc (Vaucluse)

Type: c

Sources: Brochier 1977; Mourer-Chauviré 1975a, 1979c

Layer: 1

Date: LP LG Alleröd ? "postérieur à l'Alleröd"

Fauna: *Aquila chrysaetos*, *Alectoris* cf. *graeca*, *Alectoris* cf. *barbara*, *Otis tarda*, *Apus apus*, *Alauda* cf. *arvensis*, *Turdus merula*, *Turdus viscivorus*, *Emberiza citrinella*, *Petronia petronia*, *Pyrrhonorax graculus*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 78 Es Taliens (Hautes-Pyrénées)

Alt.: 790

Type: c

Source: Clot & Mourer-Chauviré 1986

Date: MP "Mindel" ("Mindel/Riss"?)

Fauna: *Aquila chrysaetos*

Det.: Mourer-Chauviré

Stored: Musée de Bagnères-de-Bigorre ?

FR 79 Farincourt (Haute-Marne)

Type: c

Sources: Bouchud 1966; Grimm 1972; Mourer-Chauviré 1979c (Bouchud & Bouchud 1955a)

Date: LP LG Magdalenian II Dryas 1?

Fauna: *Tetrao tetrix*, *Lagopus mutus*, *Columba livia*, *Hirundo rustica*, *Turdus* sp., *Sturnus vulgaris*, *Pyrrhocorax graculus*

Det.: Bouchud

FR 80 Flageolet I (Dordogne)

Alt.: 130

Type: c

Sources: Delpech 1975, 1983

Layer: I-III

Date: LP Perigordien superieur (Perigord VIIc) $14C=22,240\pm680$ BP

Fauna: *Alauda arvensis*, *Pyrrhocorax* sp.

Layer: V

Date: LP Perigordien à Noailles (Perigord VIIb) $14C=25,700\pm700$ BP

Fauna: *Perdix perdix*

Layer: VI

Date: LP Perigordien à Noailles (Perigord VIIa)

Fauna: *Falco tinnunculus*, *Perdix perdix*, *Vanellus vanellus*, *Nyctea scandiaca*, *Lullula arborea*

Layer: VII

Date: LP Perigordien à Noailles (Perigord VIc)

Fauna: *Anas platyrhynchos*, *Anas* sp., *Falco tinnunculus*, *Lagopus* sp., *Perdix pedix*, *Calidris* sp., *Larus* sp., *Athene noctua*, *Alauda arvensis*, *Turdus* sp., *Turdus merula*, *Turdus iliacus*, *Corvus corax*, *Corvus monedula*, *Pyrrhocorax* sp., *Pyrrhocorax graculus*

Layer: VII base ?

Date: LP Perigord VIa-b

Fauna: *Perdix perdix*, *Coturnix coturnix*, *Pyrrhocorax graculus*

Layer: VIII/IX

Date: LP Aurignacian $14C=24,800-27,350$ BP (VIII) $27,000\pm1,000$ BP (IX)

Fauna: *Botaurus stellaris*, *Anas platyrhynchos*, *Anas* sp., *Aythya fuligula*, *Falco tinnunculus*, *Falco* sp., *Falco columbarius*, *Perdix perdix*, *Coturnix coturnix*, *Vanellus vanellus*, *Gallinago gallinago*, *Tringa erythropus*, *Tringa nebularia*, *Columba livia/oenas*, *Alauda arvensis*, *Hirundo* sp., *Turdus* sp., *Turdus merula*, *Turdus philomelos*, *Turdus viscivorus*, *Turdus pilaris*, *Corvus monedula*, *Corvus corax*, *Pyrrhocorax graculus*, *Pyrrhocorax* sp.,

Layer: XI

Date: LP Aurignacian ancien $14C=31,500-33,800\pm180$ BP

Fauna: *Perdix perdix*, *Coturnix coturnix*, *Turdus merula*, *Turdus pilaris*, *Corvus corax*, *Pyrrhocorax graculus*, *Pyrrhocorax* sp.

Det.: Delpech

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 81 Flageolet II (Dordogne)

Alt.: 130

Type: c

Sources: Delpech 1975, 1983; Mourer-Chauviré 1979c

Layer: IX

Date: LP Magdalenian final (Perigord V/6) 14C IX top=14,110±690 BP, IX base=15,250±320 BP, IX=14,250±400 BP

Fauna: *Nyctea scandiaca*

Det.: Delpech

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 82 Fontainebleau (Seine-et-Marne)

Sources: Lambrecht 1933; Milne-Edwards 1875a,b

Fauna: *Gallus* sp.

Det.: Gervais

Notes: probably Holocene

FR 83 Fontarnaud (Girondet)

Type: c

Sources: Delpech 1975, 1983; Mourer-Chauviré 1979c

Date: LP LG Magdalenian

Fauna: *Ardea cinerea*?, *Nyctea scandiaca*, *Lagopus* sp., *Turdus pilaris*, *Turdus philomelos*

Det.: Delpech

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 84 Fontéchevade (Charente)

Alt.: 110

Type: c

Sources: Berlioz & Bouchud 1958; Mourer-Chauviré 1975a

Layer: 2,80–3,90

Date: LP MNQ 25

Fauna: *Tetrao tetrix*, *Alectoris/Perdix* sp., *Coturnix coturnix*, *Crex crex*, *Alaudidae*, *Hirundo rupestris*, *Anthus* cf. *spinoletta*, *Prunella collaris*, *Erithacus rubecula* ?, *Phoenicurus phoenicurus*?, *Turdus merula/viscivorus*, *Sturnus* sp., *Oriolus oriolus*, *Pyrrhula pyrrhula*, *Carduelis carduelis*, *Plectrophenax nivalis*

Layer: 4,50

Date: LP MNQ 25

Fauna: *Pica pica*

Layer: 5,00–6,00

Date: LP MNQ 25

Fauna: *Scolopax rusticola*, *Picus canus*, *Turdus* cf. *iliacus*, *Lanius excubitor*, *Sturnus* sp., *Sturnus roseus*, *Loxia curvirostra*, *Carduelis cannabina*

Det.: Bouchud

Layer: ?

Date: LP MNQ 25

Fauna: *Anas platyrhynchos*, *Buteo buteo*, *Alectoris barbara*, *Lagopus lagopus*, *Tetrao tetrix*, *Tetrao urogallus*, *Perdix perdix*

Det.: Berlioz, Mourer-Chauviré

Stored: Villebois-Lavalette

Notes: List modified by Mourer-Chauviré

Date: LP "R/W interglacial" Tayacian MNQ 25

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Anas penelope*, *Mergus merganser*, *Mergus* sp., *Buteo buteo*, *Buteo* cf. *lagopus*, *Lagopus* cf. *mutus*, *Tetrao urogallus*, *Alectoris barbara*, *Perdix perdix*, *Coturnix coturnix*, *Gallus gallus*, *Crex crex*, *Scolopax rusticola*, *Picus canus*, *Alaudidae*, *Hirundo rupestris*, *Anthus* cf. *spinoletta*, *Lanius excubitor*, *Prunella collaris*, *Phoenicurus phoenicurus*, *Erithacus rubecula*, *Turdus* sp., *Carduelis carduelis*, *Carduelis cannabina*, *Loxia curvirostra*, *Pyrrhula pyrrhula*, *Sturnus* sp., *Sturnus roseus*, *Oriolus oriolus*, *Pica pica*, *Corvus corone*

Det.: Mourer-Chauviré

Stored: Musée des Antiquités Nationales, St-Germain-en-Laye (Yvelines)

Notes: revised list with all layers combined

FR 86 Freydières (Drôme)

Type: c

Source: Bouchud 1973

Date: LP LG Magdalenian final Alleröd 14C=11,380±180 BP

Fauna: *Mergus serrator*, *Tetrao tetrix*, *Tetrao urogallus*, *Lagopus mutus*, *Perdix perdix*, *Aquila chrysaetos*, *Falco tinnunculus*, *Tring* sp., *Asio otus*, *Anthus spinoletta*, *Turdus torquatus*, *Turdus* sp., *Prunella collaris*, *Sturnus vulgaris*, *Garrulus glandarius*, *Pyrrhocorax graculus*, *Pyrrhocorax pyrrhocorax*

Det.: Bouchud

Stored: Laboratoire de Géologie de l'Université de Grenoble/Musée d'Histoire Naturelle, Grenoble ?

FR 87 Gare de Couze (Dordogne)

Alt.: 40

Type: c

Sources: Delpech 1975, 1983; Mourer-Chauviré 1975a

Layer: A

Date: LP LG Remanié

Fauna: *Lagopus* cf. *lagopus*, *Nyctea scandiaca*

Det.: Prat; Delpech; Mourer-Chauviré

Layer: B

Date: LP LG Magdalenian VI

Fauna: *Lagopus* sp., *Lagopus lagopus*, *Nyctea scandiaca*, *Sturnus vulgaris*

Layer: C

Date: LP LG Magdalenian VI 14C=11,750±310

Fauna: *Lagopus* sp., *Nyctea scandiaca*, *Turdus merula*

Layer: D

Date: LP LG Magdalenian VI

Fauna: *Lagopus* sp., *Lagopus* cf. *lagopus*, *Nyctea scandiaca*, *Turdus merula* ?, *Sturnus vulgaris*, cf. *Passer domesticus*

Layer: E

Date: LP LG Magdalenian VI

Fauna: Anatidae, *Lagopus* sp., *Nyctea scandiaca*, *Turdus merula*, *Turdus iliacus*, *Sturnus vulgaris*

Layer: F

Date: LP LG Magdalenian VI

Fauna: cf. *Aegypius monachus*, *Lagopus* cf. *lagopus*, *Lagopus* sp.?, *Perdix perdix*, *Nyctea scandiaca*, *Dendrocopos major*, *Turdus merula*?, *Turdus iliacus* ?

Layer: G

Date: LP LG Magdalenian VI

Fauna: *Lagopus* sp., *Lagopus* cf. *lagopus*, *Sterna paradisaea*, *Nyctea scandiaca*, *Turdus merula*, *Turdus iliacus*?

Layer: G0

Date: LP LG Magdalenian VI

Fauna: *Lagopus* sp., *Nyctea scandiaca*, *Sitta europaea* ?

Layer: G1

Date: LP LG Magdalenian VI

Fauna: *Lagopus* sp., *Lagopus* cf. *lagopus*., *Numenius* cf. *arquata*, *Nyctea scandiaca*

Det.: Delpech, Mourer-Chauviré

Layer: 0–0,20

Date: LP LG Remanié

Fauna: *Nyctea scandiaca*

Layer: 0,20–0,35

Date: LP LG Magdalenian VI 14C=10,900±230

Fauna: *Nyctea scandiaca*

Layer: 0,35–0,50

Date: LP LG Magdalenian VI

Fauna: *Lagopus* sp., *Nyctea scandiaca*, *Turdus merula*

Layer: 0,50–0,65

Date: LP LG Magdalenian VI

Fauna: *Lagopus* sp., *Nyctea scandiaca*, *Turdus merula*, *Turdus iliacus*

Layer: 0,65–0,80

Date: LP LG Magdalenian VI

Fauna: *Nyctea scandiaca*, *Turdus merula*, *Turdus iliacus*

Layer: 0,80–0,95

Date: LP LG Magdalenian VI

Fauna: *Nyctea scandiaca*

Det.: Delpech

Stored: Institut du Quaternaire, Université de Bordeaux I

Notes: also known as Saint-Sulpice-des-Magnats

FR 88 Gradicchia cave (Corse)

Type: c

Sources: Lambrecht 1933 Newton 1922a

Date: Hol.?

Fauna: *Gallus gallus*, *Phasianus colchicus* ?, *Turdus merula*, *Corvus corone/ frugilegus*

Det.: Newton

Stored: British Museum (Natural History) or Musée d'Histoire Naturelle de Bâle ?

FR 89 Grand Caveau du Verpant (Côte d'Or)

Type: c

Source: Mourer-Chauviré 1975a

Layer: unstratified

Date: LP/Hol

Fauna: *Anas platyrhynchos*, *Tetrao tetrix*, *Gallus gallus*, *Columba livia*, *Bubo bubo*,
Asio flammeus, *Ficedula albicollis*, *Garrulus glandarius*, *Pyrhcorax graculus*,
Corvus corax

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 90 Gras à Escragnolles (Alpes-Maritimes)

Alt.: 2,000

Type: c

Source: Mourer-Chauviré 1975a

Date: LP UP

Fauna: *Aquila chrysaetos*, *Accipiter gentilis*, *Lagopus* sp., *Tetrao tetrix*, *Alectoris graeca*,
Pyrhcorax graculus

Det.: Mourer-Chauviré

Stored: Musée d'Avignon

FR 91 Grotta Del Capo (Corse)

Type: c

Sources: Lambrecht 1933; Newton 1922a

Fauna: *Turdus* sp., *Turdus merula*

Det.: Newton

Stored: British Museum (Natural History) or Musée d'Histoire Naturelle de
 Bâle ?

FR 92 Grotta di Brietta (Corse)

Alt.: 300

Type: c

Sources: Lambrecht 1933; Newton 1922a

Fauna: *Turdus* sp., *Turdus merula*, *Oenanthe oenanthe*, *Pica pica*

Det.: Newton

Stored: British Museum (Natural History) or Musée d'Histoire Naturelle de
 Bâle ?

FR 93 Grotta di Funtanedu (Corse)

Alt.: 400

Type: c

Sources: Lambrecht 1933; Newton 1922a

Fauna: *Anas platyrhynchos* ?, *Aquila* sp., *Accipiter nisus*, *Falco tinnunculus*, *Alectoris rufa*, *Coturnix coturnix*, *Porzana parva* ?, *Tringa totanus* ?, *Sterna hirundo* ?, *Columba palumbus*, *Asio flammeus*?, *Apus apus*, *Alauda arvensis*?, *Eremophila alpestris*?, *Motacilla* cf. *alba*, *Anthus pratensis*, *Anthus spinoletta* ?, *Cinclus cinclus* ?, *Oenanthe oenanthe*, *Saxicola rubetra*, *Phoenicurus phoenicurus*, *Erithacus rubecula*, *Turdus viscivorus*, *Turdus philomelos/iliacus*, *Turdus pilaris*, *Turdus merula*, cf. *Zoothera dauma*, *Phylloscopus trochilus*, *Sturnus* sp.?, *Pyrhcorax pyrhcorax*?, *Garrulus glandarius*, *Corvus monedula*, *Carduelis cannabina*

Det.: Newton

Stored: British Museum (Natural History) or Musée d'Histoire Naturelle de Bâle ?

FR 94 Grotte Cosquer (Bouches du Rhône)

Alt.: -37

Type: c

Source: Clottes et al. 1992

Date: LP 14C=18,440±440–27,110±390 BP

Fauna: *Pinguinus impennis*

Notes: rock paintings of three Great Auks in an underwater cave

FR 95 Grotte Gazel (Aude)

Type: c

Sources: Vilette 1981a, 1983

Layer: C 2bis

Date: LP ? LG Azilian

Fauna: *Carduelis chloris*

Layer: 3

Date: LP ? LG Azilian

Fauna: *Lagopus lagopus*, *Lagopus* sp., *Coturnix coturnix*, *Columba oenas*, *Pyrhcorax graculus*, *Pyrhcorax pyrhcorax*

Layer: 4

Date: LP ? LG Azilian

Fauna: *Lagopus lagopus*, *Lagopus* sp., *Coturnix coturnix*, *Columba oenas*, *Tyto alba*, *Pyrhcorax graculus*, *Pyrhcorax pyrhcorax*

Layer: 5

Date: LP LG Epimagdalenian 14C=10,080±190 BP

Fauna: *Perdix perdix*, *Columba oenas*, *Asio otus*, *Corvus monedula*

Layer: 6

Date: LP LG Epimagdalenian 14C=10,760±190 BP

Fauna: *Anas platyrhynchos*, *Aquila chrysaetos*, *Lagopus lagopus*, *Lagopus* sp., *Columba oenas*, *Pyrhcorax graculus*, *Pyrhcorax pyrhcorax*

Layer: 7

Date: LP Magdalenian moyen 14C=15,070±190 BP

Fauna: *Anser brachyrhynchus*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Columba oenas*, *Cinclus cinclus*, cf. *Parus major*, *Garrulus glandarius*, *Pyrhcorax graculus*, *Pyrhcorax pyrhcorax*, *Corvus corax*

Layer: Sondage A

Date: LP

Fauna: *Columba* sp., *Asio otus*, *Strix aluco*, *Hirundo daurica*, *Garrulus glandarius*

Det.: Vilette

Stored: Laboratoire de Préhistoire et de Palethnologie Dépôt de Fouilles Préhistoriques, Carcassonne

Notes: also known as Sallèles-Cabardès

FR 96 Grotte Grappin (Jura)

Type: c

Source: Mourer-Chauviré 1975a

Date: LP Magdalenian moyen 14C=15,320±370 BP

Fauna: *Lagopus lagopus*, *Tetrao urogallus*, *Gallus gallus*

Det.: Mourer-Chauviré

Stored: Musée de Lons-le-Saunier ?

Notes: also known as Arlay

FR 97 Grotte Jean-Pierre No. 1 (Savoie)

Type: c

Sources: Mourer-Chauviré 1975a, 1979c

Date: LP/Hol Alleröd/Preboreal

Fauna: *Plectrophenax nivalis*

Layer: 5

Date: LP/Hol 14C=9,050–10,630±210 Epipaleolithique atypique; preboreal ?

Fauna: *Asio flammeus*, *Turdus merula*, *Sylvia hortensis*, *Sylvia atricapilla*

Layer: 5a

Date: LP/Hol 14C=9,050–10,630±210 Epipaleolithique atypique; preboreal ?

Fauna: *Lagopus* sp., *Tetrao tetrix*, *Rallus aquaticus*, *Crex crex*, *Strix aluco*, *Turdus pilaris*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Pyrrhula pyrrhula*, *Pyrrhocorax pyrrhocorax*

Layer: 5b

Date: LP/Hol 14C=9,050–10,630±210 Epipaleolithique atypique; preboreal ?

Fauna: *Tetrao tetrix*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Sylvia communis*, *Pyrrhula pyrrhula*

Layer: 5c

Date: LP/Hol 14C=9,050–10,630±210 Azilian Preboreal ?

Fauna: *Tetrao tetrix*, *Dryocopus martius*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Sylvia communis*

Layer: 6

Date: LP LG Dryas 3 ? 14C=10,750±300 BP Azilian

Fauna: *Anas platyrhynchos*, *Lagopus* sp., *Tetrao tetrix*, *Coturnix coturnix*, *Asio flammeus*, *Aegolius funereus*, *Dendrocopos leucotos*, *Fringilla coelebs*

Layer: 6a

Date: LP LG Dryas 3 ? 14C=10,750±300 BP Azilian

Fauna: *Anas crecca*, cf. *Accipiter nisus*, *Lagopus* sp., *Tetrao tetrix*, *Coturnix coturnix*, *Crex crex*, *Actitis hypoleucos*, *Aegolius funereus*, *Strix aluco*, *Dendrocopos leucotos*,

Hirundo daurica, *Turdus pilaris*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*,
Sylvia atricapilla, *Pyrrhula pyrrhula*

Layer: 6b

Date: LP LG Alleröd ? Azilian 14C=10,750±300 BP

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Lagopus* sp., *Tetrao tetrix*, *Coturnix coturnix*,
Rallus aquaticus, *Crex crex*, *Lymnocyptes minimus*, *Asio flammeus*, *Aegolius fu-*
nerus, *Strix aluco*, *Dendrocopos major*, *Dendrocopos leucotus*, *Hirundo daurica*,
Turdus pilaris, *Turdus* cf. *torquatus*, *Turdus merula*, *Turdus iliacus*, *Turdus vis-*
civorus, *Sylvia atricapilla*, *Sylvia communis*, *Parus montanus*, *Pyrrhula pyrrhula*,
Coccothraustes coccothraustes

Layer: 6c

Date: LP LG Alleröd ? Azilian 14C=10,750±300 BP

Fauna: *Anas platyrhynchos*, *Lagopus lagopus*, *Lagopus* sp., *Tetrao tetrix*

Layer: 7

Date: LP LG Dryas 2 ? Azilian 14C=11,900±360 BP

Fauna: *Anas platyrhynchos*, *Anas strepera*, *Anas querquedula*, *Falco subbuteo*, *Lagopus*
lagopus ?, *Lagopus mutus*, *Tetrao tetrix*, *Crex crex*, *Pluvialis squatarola* ?, *Asio otus*?,
Asio flammeus, *Turdus pilaris*, *Pyrrhonorax graculus*?

Layer: 8

Date: LP LG Bölling or Dryas 2 ?

Fauna: *Anas platyrhynchos*, *Anas strepera*, *Anas querquedula*, *Falco tinnunculus*, *Lago-*
pus lagopus, *Lagopus mutus*, *Tetrao tetrix*, *Rallus aquaticus*, *Gallinago media*,
Lymnocyptes minimus, *Calidris alba*, *Rissa tridactyla*, *Asio otus*, *Asio flammeus*,
Strix aluco, *Dendrocopos leucotus*, *Fringilla coelebs*, *Pyrrhonorax pyrrhonorax*,
Pyrrhonorax graculus

Layer: 9

Date: LP LG Dryas 1c ? Magdalenian sup., 14C=13,000±300

Fauna: *Anas platyrhynchos*, *Anas strepera*, *Falco subbuteo*, *Falco vespertinus*, *Lagopus*
lagopus, *Lagopus mutus*, *Tetrao tetrix*, *Pluvialis apricaria*, *Gallinago media*, *Lym-*
nocyptes minimus, *Asio otus*, *Asio flammeus*, *Strix aluco*, *Apus apus*, *Pyrrhonorax*
graculus

Layer: 10

Date: LP Pre-Bölling ?

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Det.: Mourer-Chauviré

Stored: Laboratoire de Géologie de l'Université de Grenoble/Musée d'Histoire
 Naturelle, Grenoble

Notes: also known as Saint Thibaud.-de-Couz

FR 98 Grotte Noëlle (Hautes-Pyrénées)

Alt.: 650

Type: c

Source: Clot & Mourer-Chauviré 1986

Date: LP Würm ancien

Fauna: *Lagopus* sp., *Perdix palaeoperdix/perdix*, *Turdus pilaris*, *Turdus viscivorus*,
Fringilla coelebs, *Pyrrhonorax graculus*

Det.: Mourer-Chauviré

Stored: Musée de Bagnères-de-Bigorre ?

FR 99 Grotte Noire (Pyrénées-Orientale)

Type: c

Sources: Clot & Mourer-Chauviré 1986; Vilette 1983

Date: LP LG Epimagdalenian (end Würm IV/Holocene)

Fauna: *Aquila chrysaetos*, *Turdus* cf. *merula*, *Turdus iliacus*, *Turdus viscivorus*, *Pyrhocorax graculus*, *Plectrophenax nivalis*

Det.: Vilette

FR 100 Grotte Saint-Martin (Alpes-Maritimes)

Type: c

Source: Wolf 1938–41.

Date: LP ?

Fauna: *Alectoris graeca*

Det.: Rivière ?

FR 101 Grotte Saint-Michel d'Arudy (Pyrénées-Atlantiques)

Alt.: 450

Type: c

Sources: Marsan 1980; Wolf 1938–41 (Mascaraux 1910)

Date: LP LG Magdalenian IV-VI

Fauna: *Corvus corax*

Det.: Boule

Notes: also known as Arudy-Espalungue, Saint-Michel

FR 102 Grotte Simard (Charente)

Type: c

Source: Mourer-Chauviré 1975a

Date: LP Mousterian ancien

Fauna: *Mergus merganser*, *Perdix perdix*, *Gallus gallus*, *Athene noctua*, *Lullula arborea*, *Hirundo daurica*, *Motacilla flava*, *Motacilla alba*, *Oenanthe oenanthe*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Sylvia atricapilla*, *Sturnus roseus*, *Corvus frugilegus*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 103 Grotte de Brengues (Lot)

Type: c

Sources: Lambrecht 1933; Milne-Edwards 1875a,b; Paris 1912; Wolf 1938–41 (Giebel 1847)

Fauna: *Perdix perdix*, *Pyrhocorax graculus*

Det.: Milne-Edwards; Puel

Stored: Musée National d'Histoire Naturelle, Paris ?

Notes: also known as Brenguez, Brengues, Grottes de Brengues; *Pica pica* reported from this site is actually *Pyrrhonorax graculus*, according to Milne-Edwards (1875a,b) who also thought it likely that the *Perdix* remains from this site were actually *Lagopus*

FR 104 Grotte de Gabillou (Dordogne)

Alt.: 55

Type: c

Source: Mourer-Chauviré 1975a

Date: LP LG Magdalenian III

Fauna: *Lagopus* cf. *lagopus*, *Lagopus* cf. *mutus*, *Perdix perdix*, *Nyctea scandiaca*

Det.: Mourer-Chauviré

Stored: Institut du Quaternaire, Université de Bordeaux

FR 105 Grotte de Gargas (Hautes-Pyrénées)

Alt.: 537

Type: c

Sources: Bouchud 1958; Clot & Mourer-Chauviré 1986; Lambrecht 1933; Wolf 1938–41

Date: LP Perigordien

Fauna: *Pyrrhonorax graculus*

Det.: Bouchud

Date: LP

Fauna: *Pinguinus impennis*

Notes: *Pinguinus impennis* reorted by Lambrecht and Wolf but very doubtful!

FR 106 Grotte de Gatzarria (Pyrénées-Atlantiques)

Type: c

Source: Clot & Mourer-Chauviré 1986 (Lavaud 1980)

Date: LP Mousterian-Gravettian "Würm II-III"

Fauna: *Lagopus mutus*, *Lagopus* sp., *Perdix perdix*, *Coturnix coturnix*, *Galerida cristata*, *Alauda arvensis*, *Hirundo rupestris*, *Motacilla alba*, *Cinclus cinclus*, *Monticola* cf. *solitarius*, *Turdus philomelos*, *Coccothraustes coccothraustes*, *Garrulus glandarius*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Corvus corax*

Det.: Mourer-Chauviré

Stored: Musée d'Arudy ?

FR 107 Grotte de Gouërris (Haute Garonne)

Alt.: 290

Type: c

Sources: Clot & Mourer-Chauviré 1986; St Périer 1927; Wolf 1938–41

Layer: B

Date: LP LG Magdalenian/Azilian

Fauna: *Cygnus olor*, *Anser anser*, *Anas platyrhynchos*, *Anas* sp., *Mergus serrator*, *Tetrao urogallus*, *Grus* cf. *primigenia*

Layer: c

Date: LP LG Magdalenian

Fauna: *Anser anser*, *Anas clypeata* ?, *Tetrao tetrix*, *Lagopus mutus*, *Turdus pilaris*, *Sturnus* sp., *Pyrrhocorax graculus*, *Pica pica*

Det.: Boule

FR 108 Grotte de Gourdan (Haute Garonne)

Alt.: 481

Type: c

Sources: Clot & Mourer-Chauviré 1986; Lambrecht 1933; Milne-Edwards 1867–71; 1875a,b; Wolf 1938–41 (Gervais 1873, Piette 1873)

Date: LP LG Upper Magdalenian (Würm III, IV)

Fauna: *Ciconia* sp., *Cygnus cygnus*, *Anas platyrhynchos*, *Somateria* sp., *Buteo buteo*, *Aquila* sp., *Haliaeetus albicilla*, *Aegypius monachus*, *Falco subbuteo*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Gallus* sp., *Gallus gallus*, *Grus primigenia*, *Nyctea scandiaca*, *Bubo bubo*, *Turdus viscivorus*, *Corvus corax*, *Corvus corone*, *Pica pica*, *Pyrrhocorax graculus*, *Pyrrhocorax pyrrhocorax*, *Carduelis chloris*

Det.: Milne-Edwards; Mourer-Chauviré; Vilette

Notes: also known as Grotte de l'Eléphant, Grotte Murée; *Carduelis chloris* and *Tetrao tetrix* not mentioned by Clot & Mourer-Chauviré (1986).

FR 109 Grotte de Junqua (Pyrénées-Atlantiques)

Alt.: 355

Type: c

Source: Clot & Mourer-Chauviré 1986

Date: LP "Würm III"

Fauna: *Anas platyrhynchos*, *Cinclus cinclus*, *Turdus iliacus*, *Coccothraustes coccothraustes*

Det.: Mourer-Chauviré

Stored: Musée de Lourdes ?

Notes: also known as Gouffre de Junqua

FR 110 Grotte de Lacombe (Dordogne)

Alt.: 150

Type: c

Sources: Lambrecht 1933; Milne-Edwards 1867–71, 1875a,b; Paris 1912; Wolf 1938–41

Date: LP Aurignacian-Mousterien ?

Fauna: *Falco tinnunculus*, *Gypaetus barbatus*, *Corvus corax*, *Pyrrhocorax graculus*, *Perdix perdix*, *Nucifraga caryocatactes*

Det.: Milne-Edwards

Notes: also known as La Combe

FR 111 Grotte de Laffray (Aude)

Type: c

Source: Mourer-Chauviré 1975a

Date: LP Mousterian, Würm II ?

Fauna: *Nyctea scandiaca*

Det.: Mourer-Chauviré

Stored: Musée Requien, Avignon

FR 112 Grotte de Laugerie-Basse (Dordogne)

Alt.: 75

Type: c

Source: Wolf 1938–41

Date: LP LG Magdalenian

Fauna: *Falco tinnunculus*, *Aquila chrysaetos*, *Aegypius monachus*, *Gypaetus barbatus*,
Turdus viscivorus, *Corvus corax*

Stored: Musée de Préhistoire, Les Eyzies ?

FR 113 Grotte de Lherm (Ariège)

Alt.: 578

Type: c

Sources: Clot & Mourer-Chauviré 1986; Lambrecht 1933; Milne-Edwards
1867–71, 1875a,b; Paris 1912; Wolf 1938–41

Date: MP/LP Riss/Würm ancien

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Gallus* sp., *Nyctea scandiaca*, *Bombycilla gar-*
rulus, *Phoenicurus phoenicurus*, *Pyrrhocorax graculus*

Det.: Milne-Edwards

Stored: Musée National d'Histoire Naturelle, Institut de Paléontologie, Paris
(partly) and Musée d'Histoire Naturelle de Toulouse (partly)

Notes: also known as Grotte de l'Herm

FR 114 Grotte de Lortet (Hautes-Pyrénées)

Alt.: 563

Type: c

Sources: Clot & Mourer-Chauviré 1986; Piette 1873; Wolf 1938–41 (Piette 1875)

Date: LP LG Magdalenian IV, VI

Fauna: *Tetrao urogallus*

Det.: Milne-Edwards ?

Date: LP LG Magdalenian superieur-final

Fauna: *Lagopus lagopus*, *Lagopus* sp., *Turdus merula*, *Pyrrhocorax graculus*, *Corvus*
corax

Det.: Mourer-Chauviré; Vilette

Notes: also known as Grotte Piette

FR 115 Grotte de Lourdes. (Hautes-Garonne)

Alt.: 430

Type: c

Sources: Clot & Mourer-Chauviré 1986; Lambrecht 1933; Milne-Edwards
1867–71; 1875a,b; Mourer-Chauviré 1975a, 1980a; Paris 1912; Wolf 1938–41
(Bouchud 1972)

Layer: unstratified

Date: LP LG Magdalenian IV-VI + Azilian

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Melanitta nigra*, *Clangula hyemalis*, cf. *Aquila chrysaetos*, *Buteo rufinus*, *Falco columbarius*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Gallus gallus*, *Arenaria interpres*, *Rissa tridactyla*, *Columba livia*, *Columba oenas*, *Nyctea scandiaca*, *Asio otus*, *Asio flammeus*, *Hirundo rupestris*, *Turdus pilaris*, *Turdus viscivorus*, *Fringilla coelebs*, *Garulus glandarius*, *Pica pica*, *Pyrhacorax pyrrhacorax*, *Pyrhacorax graculus*, *Corvus corone*, *Corvus corax*

Layer: Locus 1

Date: LP LG Magdalenian 14C=13,170±260 BP

Fauna: *Pyrhacorax pyrrhacorax*

Det.: Milne-Edwards; Mourer-Chauviré; Bouchud

Stored: Musée d'Histoire naturelle de Paris; Musée de Bordeaux; Département des Sciences de la Terre, Lyon

Notes: also known as Espélugues, Espélungues

FR 116 Grotte de Massat (Ariège)

Alt.: 690

Type: c

Sources: Clot & Mourer-Chauviré 1986; Milne-Edwards 1867–71; 1875a,b; Paris 1912; Wolf 1938–41

Date: LP Magdalenian

Fauna: *Cygnus cygnus*, *Anas platyrhynchos*, *Aquila clanga*, *Falco subbuteo*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Gallinula chloropus*, *Nyctea scandiaca*, *Nucifraga caryocatactes*, *Corvus corax*, *Pyrhacorax pyrrhacorax primigenius*, *Loxia curvirostra*, *Montifringilla nivalis*

Det.: Milne-Edwards

Notes: also known as Grotte inferieur de Queire/Ker and Massat inferieur; Lambrecht also mentions *Pyrhacorax graculus* (probably mistake for *Pyrhacorax pyrrhacorax*)

FR 117 Grotte de Montgaudier (Charente)

Type: c

Sources: Lambrecht 1933; Milne-Edwards 1867–71; Paris 1912; Wolf 1938–41

Date: LP ?

Fauna: *Anas platyrhynchos*

Det.: Milne-Edwards

Notes: also known as Grotte de Montgodier and Mongodier

FR 118 Grotte de Nichet (Ardennes)

Type: c

Sources: Bastin 1933; Howard 1939

Layer: Lower

Date: LP ?

Fauna: *Tetrao tetrix*, *Phasianus nicheti*, *Crex crex*, *Pyrhacorax graculus*

Det.: Gaillard

Notes: *Phasianus nichi* is a *nomen nudum*

FR 120 Grotte de Raymonden (Dordogne)

Alt.: 100

Type: c

Source: Lambrecht 1933 (Gaudry 1890)

Fauna: *Tetrao urogallus*, *Asio* sp.

FR 121 Grotte de Rizerolles (Saône-et-Loire)

Type: c

Source: Mourer-Chauviré 1975a

Date: MP "Riss ?" "Clactonian"

Fauna: *Tetrao tetrix*, *Nyctea scandiaca*

Det.: Mourer-Chauviré

Stored: Musé de Préhistoire d'Azé

Notes: also known as Rizerolles à Azé

FR 122 Grotte de Saint-Martin d'Excideuil (Dordogne)

Type: c

Sources: Lambrecht 1933; Milne-Edwards 1867–71, 1875a,b; Wolf 1938–41

Date: LP

Fauna: *Perdix perdix*, *Pyrhcorax pyrrhcorax primigenius*, *Pyrhcorax graculus*

Det.: Milne-Edwards

Stored: Musée de Préhistoire, Les Eyzies

Notes: also known as Grotte de l'Eglise à Saint-Martin d'Excideuil

FR 123 Grotte de Sirejol (Lot)

Type: c

Source: Philippe et al. 1980

Date: LP 14C=29,100–31,300 BP

Fauna: *Charadrius morinellus*, *Calandrella brachydactyla*, *Sylvia hortensis* ?, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Det.: Mourer-Chauviré

Stored: Département des Sciences des la Terre, Lyon

FR 124 Grotte de Tarté (Haute-Garonne)

Alt.: 347

Type: c

Sources: Clot & Mourer-Chauviré 1986; Mourer-Chauviré 1975a

Date: LP Magdalenian (inferieur ?), Perigordien (1986)

Fauna: *Gypaetus barbatus*, *Aquila chrysaetos*

Stored: Musée d'Histoire naturelle de Bordeaux

Notes: collection Harlé

Date: LP Aurignacian

Fauna: *Perdix perdix*, *Pyrhcorax graculus*

Det.: Mourer-Chauviré

FR 125 Grotte de Tibiran (Hautes-Pyrénées)

Alt.: 501

Type: c

Source: Clot & Mourer-Chauviré 1986

Date: LP LG Magdalenian (?) "Würm"

Fauna: *Turdus* cf. *pilaris*, *Pyrrhocorax graculus*

Det.: Mourer-Chauviré; Bouchud

Stored: Musée de Bagnères-de-Bigorre ?

FR 126 Grotte de la Carrière à Gerde (Hautes-Pyrénées)

Alt.: 580

Type: c

Sources: Mourer-Chauviré 1975a, 1979c

Layer: "Galerie nord-ouest, partie sud"

Date: MP/LP Riss final or Riss/Würm

Fauna: *Anser brachyrhynchus* ?, *Anas crecca*, *Tetrao tetrix*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Crex crex*, *Charadrius morinellus*, *Gallinago media*, *Larus fuscus*, *Lullula arborea*, *Turdus merula*, cf. *Miliaria calandra*, *Pyrrhocorax graculus*

Layer: "Galerie nord-ouest, partie nord"

Date: MP Riss

Fauna: *Anas platyrhynchos*, *Tetrao tetrix*, *Galerida cristata*, *Pyrrhocorax graculus*

Layer: E

Date: MP Riss

Fauna: *Perdix palaeoperdix*, *Pyrrhocorax graculus*

Notes: "salle de l'Eboulis"

Layer: P and Pi

Date: MP Riss

Fauna: *Falco* cf. *vespertinus*, *Pyrrhocorax graculus*

Notes: "salle de l'Eboulis"

Layer: E

Date: MP Riss

Fauna: *Anas querquedula*, *Lagopus* cf. *mutus*, cf. *Tetrao tetrix*, *Corvus corax*

Notes: "Galerie Est"

Layer: P

Date: MP Riss

Fauna: *Galerida cristata*, *Cinclus cinclus*, *Turdus merula*

Notes: "Galerie Est"

Layer: T

Date: MP Riss

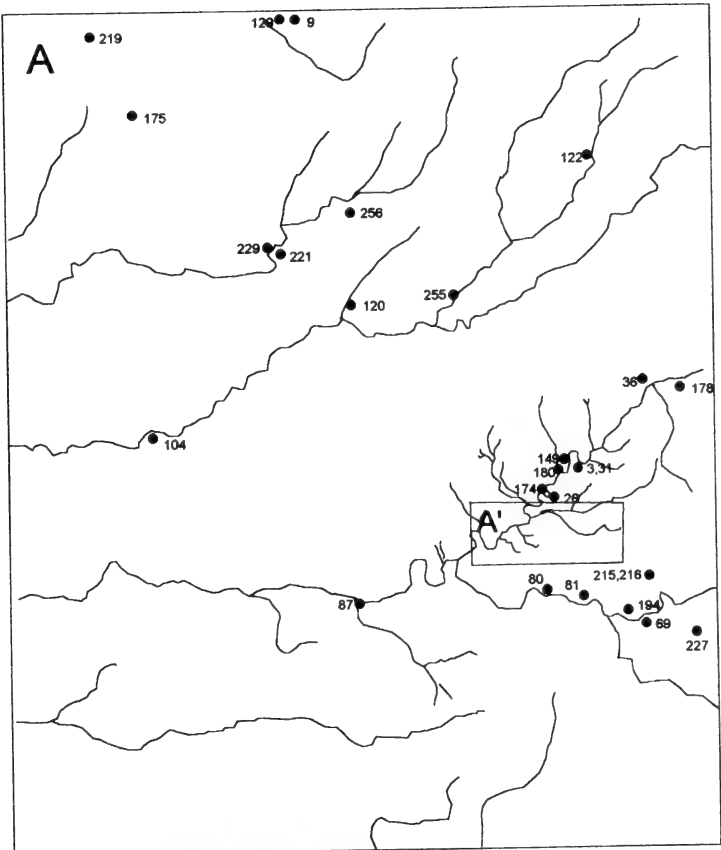
Fauna: *Coturnix coturnix*

Notes: "Galerie Est"

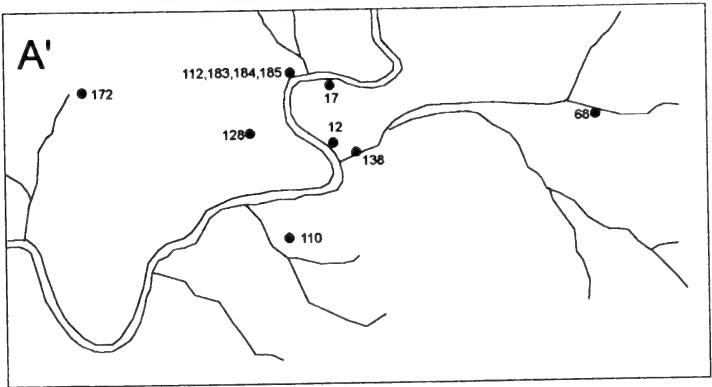
Layer: Middle of "Galerie Est"

Date: MP Riss

Fauna: *Tadorna tadorna*, *Lagopus* sp., *Tetrao tetrix*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Crex crex*, *Asio flammeus*, *Calandrella brachydactyla*,



Not exactly localized sites in this area: 73,137,179



Lullula arborea, *Cinclus cinclus*, *Oenanthe oenanthe*, *Turdus pilaris*, *Turdus merula*, *Pyrrhonorax graculus*

Layer: "Le Galerie du 18 août"

Date: MP Riss

Fauna: *Tetrao tetrix*, *Tetrao urogallus*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Crex crex*, *Nyctea scandiaca*, *Galerida cristata*, *Lullula arborea*, *Oenanthe oenanthe*, *Turdus merula*

Layer: déblais

Date: MP/LP

Fauna: *Pyrrhonorax graculus*

Layer: "Eboulis central en surface"

Date: MP Riss

Fauna: *Pyrrhonorax graculus*

Layer: "fond de la Galerie Est"

Date: MP Riss

Fauna: *Coturnix coturnix*, *Galerida cristata*, *Pyrrhonorax graculus*

Layer: "salle de l'Eboulis, fonds du Puits Larrieu, sous le plancher"

Date: MP Riss

Fauna: *Pyrrhonorax graculus*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

Notes: also known as Gerde, Grotte de Gerde

FR 127 Grotte de la Chèvre (Hautes-Pyrénées)

Type: c

Source: Clot & Mourer-Chauviré 1986

Date: LP "Würm IV"

Fauna: *Turdus viscivorus*

Det.: Mourer-Chauviré

Stored: Musée de Bagnères-de-Bigorre ?

FR 128 Grotte de la Gorge d'Enfer (Dordogne)

Type: c

Sources: Lambrecht 1933; Milne-Edwards 1867–71; 1875a,b; Wolf 1938–41

Date: LP Aurignacien ?

Fauna: *Aegyptius monachus*, *Lagopus lagopus*

Det.: Milne-Edwards

FR 129 Grotte de la Mairie (Dordogne)

Type: c

Source: Wolf 1938–41 (Capitan et al. 1908)

Layer: D I

Date: LP LG Magdalenian

Fauna: *Aquila chrysaetos*, *Gallinago media*, *Actitis hypoleucos*, *Bubo bubo*

Layer: D II

Date: LP LG Magdalenian
 Fauna: *Corvus corax*
 Layer: ?
 Date: LP LG Magdalenian
 Fauna: *Oenanthe oenanthe*
 Notes: also known as Teyjat

FR 131 Grotte de la Vache (Ariège)

Alt.: 595
 Type: c
 Sources: Clot & Mourer-Chauviré 1986; Koby 1957a,b
 Layer: I
 Date: LP LG Magdalenian
 Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix* ?, *Perdix perdix*, *Pica pica*, *Pyrhcorax graculus*
 Layer: II
 Date: LP LG Magdalenian 14C=12,540±105, 11,650±200 BP
 Fauna: *Ciconia* sp., *Mergus merganser*, *Haliaeetus albicilla*, *Gyps fulvus*, *Aegypius monachus*, *Gypaetus barbatus*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Corvus corax*, *Pyrhcorax graculus*, *Pyrhcorax pyrrhcorax*
 Layer: III
 Date: LP LG Magdalenian
 Fauna: *Anas platyrhynchos*, *Mergus merganser*, *Buteo buteo*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Streptopelia turtur*, *Corvus corax*, *Pyrhcorax graculus*, *Pyrhcorax pyrrhcorax*
 Layer: IV
 Date: LP LG Magdalenian 14C=12,850±60 BP
 Fauna: *Gypaetus barbatus*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Bubo bubo*, *Nyctea scandiaca*, *Pica pica*, *Corvus corax*, *Pyrhcorax graculus*, *Pyrhcorax pyrrhcorax*
 Det.: Koby

FR 132 Grotte de l'Homme Mort (Hautes-Pyrénées)

Type: c
 Source: Clot & Mourer-Chauviré 1986
 Date: LP "Würm IV"
 Fauna: *Mergus merganser*, *Pyrhcorax graculus*
 Det.: Mourer-Chauviré
 Stored: Musée de Bagnères-de-Bigorre ?

FR 133 Grotte de l'Observatoire (Monaco)

Alt.: 103
 Type: c
 Sources: Boule & Villeneuve 1927; Lambrecht 1933; Mourer-Chauviré 1975a; Wolf 1938–41
 Date: LP "Würm II & III?"

Fauna: *Podiceps auritus/grisegena*, *Phalacrocorax aristotelis*, *Anas clypeata*, *Gyps fulvus*, *Aegypius monachus*, *Gypaetus barbatus*, *Aquila chrysaetos*, *Buteo buteo*, *Accipiter gentilis*, *Haliaeetus albicilla*, *Circus macrourus*, *Falco tinnunculus*, *Alectoris graeca*, *Alectoris barbara*, *Perdix perdix*, *Coturnix coturnix*, *Scolopax rusticola*, *Columba livia*, *Columba oenas*, *Columba palumbus*, *Bubo bubo*, *Athene noctua*, *Strix aluco*, *Turdus pilaris/viscivorus*, *Turdus torquatus*, *Turdus merula*, *Alaudidae*, *Zoothera dauma* ?, *Sturnus vulgaris*, *Pica pica*, *Pyrhocorax pyrrhocorax primigenius*, *Pyrhocorax graculus*, *Corvus corone*, *Corvus corax*

Det.: Boule; Mourer-Chauviré

Stored: Musée d'Anthropologie Préhistorique de Monaco and Institut de Paléontologie Humaine à Paris

Notes: Species mentioned by Boule but not by Mourer-Chauviré: *Gavia* sp., *Falco peregrinus* ?, *Alectoris rufa*, *Turdus iliacus*, *Gallus* sp., *Tetrao tetrix* ?

FR 134 Grotte des Cedres (Var)

Alt.: 900

Type: c

Sources: Defleur et al. 1990; Vilette 1995

Layer: II

Date: MP, Late MP near end IS 6

Fauna: cf. *Turdus torquatus*, cf. *Nucifraga caryocatactes*, *Pyrhocorax graculus* cf. *vetus*, *Coccothraustes coccothraustes*

Layer: III

Date: MP, Late MP near end IS 6

Fauna: *Columba* cf. *livia*, *Pyrhocorax graculus* cf. *vetus*

Layer: IV

Date: MP, Late MP near end IS 6

Fauna: cf. *Alectoris graeca*

Layer: Unstratified

Date: MP, Late MP near end IS 6

Fauna: *Garrulus glandarius*, *Pyrhocorax graculus*

Det.: Vilette

Stored: Musée d'Histoire Naturelle/Université de Marseille ?

FR 135 Grotte des Eglises (Ariège)

Type: c

Sources: Clot & Mourer-Chauviré 1986; Delpech 1975, 1983; Delpech & Le Gall 1983

Layer: 3

Date: LP LG

Fauna: *Lagopus lagopus*, *Corvus corax*

Layer: 4

Date: LP LG Magdalenian final

Fauna: *Lagopus lagopus*

Layer: 6

Date: LP LG Magdalenian final

Fauna: *Lagopus lagopus*, *Corvus corax*, *Pyrhocorax graculus*

Layer: "Foyer noir" = Layer 6+9 Date: LP LG Magdalenian final

Fauna: *Lagopus lagopus*, *Corvus corax*, *Pyrhcorax graculus*

Layer: 6–8

Date: LP LG Magdalenian final

Fauna: *Lagopus lagopus*, *Corvus corax*

Layer: 8

Date: LP LG Magdalenian final 14C=11,800±500, 12,900±220 BP

Fauna: *Lagopus lagopus*, *Corvus corax*

Layer: 8–9

Date: LP LG Magdalenian final

Fauna: *Lagopus lagopus*, *Corvus corax*

Layer: 9

Date: LP LG Magdalenian final

Fauna: *Lagopus lagopus*, *Certhia* sp., *Corvus corax*, *Pyrhcorax graculus*

Layer: 9a

Date: LP LG Magdalenian final

Fauna: *Lagopus lagopus*, *Corvus corax*, *Pyrhcorax graculus*

Layer: 9b

Date: LP LG Magdalenian final

Fauna: *Lagopus lagopus*, *Corvus corax*

Layer: 11

Date: LP LG Magdalenian final

Fauna: *Lagopus lagopus*, *Corvus corax*

Layer: unstratified

Date: LP LG

Fauna: *Lagopus lagopus*, *Turdus* sp., *Corvus corax*, *Pyrhcorax graculus*

Det.: Delpech

Stored: Institut du Quaternaire, Université de Bordeaux I

Notes: also known as Ussat

FR 136 Grotte des Escabasses (Lot)

Type: c

Source: Mourer-Chauviré 1975a

Date: LP UP Gravettian-Protosolutreen

Fauna: *Athene noctua*

Det.: Mourer-Chauviré

FR 137 Grotte des Escoutiers (Dordogne)

Alt.: 157

Type: c

Sources: Lambrecht 1933; Milne-Edwards 1867–71, 1875a,b

Fauna: *Perdix perdix*

Det.: Milne-Edwards

FR 138 Grotte des Eyzies (Dordogne)

Alt.: 100

Type: c

Sources: Lambrecht 1933; Milne-Edwards 1867–71, 1875a,b; Paris 1912; Wolf 1938–41

Date: LP Solutrean-Magdalenian

Fauna: *Anas platyrhynchos*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Grus primigenia*, *Nyctea scandiaca*, *Pyrrhocorax graculus*

Det.: Milne-Edwards

Stored: Musée National d'Histoire Naturelle, Institut de Paléontologie, Paris

Notes: also known as Grotte Richard, Grotte Les Eyzies

FR 139 Grotte des Fées (Gironde)

Type: c

Sources: Delpech 1975, 1983

Date: LP Magdalenian 14C=14,200±190, 14,910±240, 17,410±310

Fauna: *Lagopus* sp., *Nyctea scandiaca*, *Hirundo* sp., *Turdus merula*

Det.: Delpech

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 140 Grotte des Fées à Châtelperron (Allier)

Type: c

Sources: Lambrecht 1933; Milne-Edwards 1875a,b; Mourer-Chauviré 1975a

Fauna: *Gallus* sp.

Det.: Milne-Edwards

Layer: A

Date: LP/Hol Post-Châtelperronian

Fauna: *Lagopus lagopus*

Layer: B

Date: LP Châtelperronian Würm IIIa

Fauna: *Anser brachyrhynchus*, *Aquila chrysaetos*, *Buteo buteo*, *Tetrao tetrrix*, *Tetrao urogallus*, *Turdus pilaris*

Layer: C

Date: LP Mousterian (MAT)

Fauna: *Anas platyrhynchos*, *Mergus merganser*, *Tetrao tetrrix*, *Perdix perdix*, *Turdus pilaris*, *Sturnus vulgaris*, *Pyrrhocorax graculus*, *Corvus monedula*?, *Corvus corax*

Det.: Mourer-Chauviré; Bouchud

Stored: Département des Sciences de la Terre, Lyon

FR 141 Grotte des Harpons (Haute-Garonne)

Alt.: 290

Type: c

Sources: Clot & Mourer-Chauviré 1986; St Périer 1920, 1921; Wolf 1938–41

Layer: A

Date: LP LG Magdalenian final-early Azilian

Fauna: *Cygnus olor*?, *Anas platyrhynchos*, *Lagopus* cf. *mutus*, *Gallus* sp., *Grus primigenia*, *Nyctea scandiaca*, *Pyrrhocorax graculus*

Layer: B

Date: LP LG Magdalenian

Fauna: *Mergus serrator*, *Accipiter gentilis*, *Lagopus lagopus*, *Alectoris* cf. *barbara*, *Tringa/Philomachus* sp., *Pyrhcorax graculus*

Layer: C

Date: LP LG Magdalenian

Fauna: *Mergus serrator*, *Aquila chrysaetos*, *Lagopus lagopus*, *Nyctea scandiaca*

Layer: D

Date: LP Upper Solutrean

Fauna: *Anser* sp., *Anas crecca*, *Gyps melitensis*, *Aquila* sp., *Falco* sp., *Falco tinnunculus*, *Columba livia*, *Sturnus unicolor*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Det.: Boule

FR 142 Grotte des Hotetux (Ain)

Alt.: 350

Type: c

Sources: Mourer-Chauviré 1975a, 1979c; Wolf 1938–41 (d'Acy 1895, Schenk 1912, Mayet & Pissot 1915).

Date: LP LG Magdalenian IV ? Bölling ?

Fauna: *Lagopus mutus*, *Lagopus lagopus*, *Tetrao tetrix*, *Athene noctua* ?, *Cinclus cinclus*, *Pyrhcorax graculus*

Det.: Milne-Edwards; Mourer-Chauviré

Stored: Musée d'Histoire Naturelle de Lyon

Notes: Fauna revised by Mourer-Chauviré; *Athene noctua* not located during revision

FR 143 Grotte des Rideaux (Haute Garonne)

Alt.: 340

Type: c

Sources: Clot & Mourer-Chauviré 1986; St Périer 1924; Wolf 1938–41

Date: LP

Gravettian (Würm III & IV)

Fauna: *Aquila* sp.?, *Alectoris rufa*, *Columba livia*, *Asio flammeus*, *Corvus frugilegus*, *Pyrhcorax graculus*

Det.: Boule

FR 144 Grotte des Romains (Ain)

Type: c

Sources: Desbrosse & Mourer-Chauviré 1973; Mourer-Chauviré 1975a, 1979c

Layer: IIa

Date: LP LG Magdalenian, Bölling ?

Fauna: *Anas platyrhynchos*, *Cypaetus barbatus*, *Buteo buteo*, *Falco tinnunculus*, *Lagopus* sp., *Tetrao tetrix*, *Scolopax rusticola*, *Columba livia*, *Nyctea scandiaca*, *Dryocopus martius*, *Dendrocopus medius*, *Hirundo daurica*, *Delichon urbica*, *Prunella collaris*, *Turdus* cf. *torquatus*, *Turdus merula*, *Turdus iliacus*, *Acrocephalus paludicola*, *Sylvia atricapilla*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Coccothraustes coccothraustes*, *Montifringilla nivalis*, *Emberiza hortulana*

Layer: IIb

Date: LP LG Magdalenian Bölling ? 14C=12,540±400 BP

Fauna: *Podiceps auritus*, *Anas platyrhynchos*, *Anas crecca*, *Anas chyeata*, *Aythya fuligula*, *Clangula hyemalis*, *Gypaetus barbatus*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrax*, *Perdix perdix*, *Gallinago gallinago*, *Calidris alba*, *Columba livia*, *Nyctea scandiaca*, *Strix aluco*, *Apus apus*, *Dendrocopos medius*, *Hirundo daurica*, *Delichon urbica*, *Turdus cf. torquatus*, *Turdus merula*, *Turdus iliacus*, *Acrocephalus paludicola*, *Ficedula hypoleuca*, *Emberiza hortulana*, *Coccothraustes coccothraustes*, *Montifringilla nivalis*, *Garrulus glandarius*, *Pica pica*, *Pyrhocorax graculus*, *Corvus corax*

Layer: III

Date: LP LG Magdalenian Bölling ? 14C=12,540–14,380 BP

Fauna: *Podiceps auritus*, *Cygnus olor*, *Cygnus cygnus*, *Anas platyrhynchos*, *Anas crecca*, *Anas strepera*, *Anas acuta*, *Anas querquedula*, *Aythya fuligula*, *Melanitta nigra*, *Clangula hyemalis*, *Gypaetus barbatus*, *Aquila chrysaetos*, *Buteo buteo*, *Falco rusticolus*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrax*, *Grus grus* ?, *Gallinago gallinago*, *Numenius arquata*, *Numenius tenuirostris*, *Tringa totanus*, *Calidris alba*, *Larus argentatus*, *Larus canus*, *Sterna sandvicensis*, *Cuculus canorus*, *Nyctea scandiaca*, *Asio otus*, *Asio flammeus*, *Apus melba*, *Lullula arborea*, *Hirundo daurica*, *Delichon urbica*, *Turdus cf. torquatus*, *Turdus merula*, *Acrocephalus paludicola*, *Sylvia atricapilla*, *Coccothraustes coccothraustes*, *Montifringilla nivalis*, *Garrulus glandarius*, *Pica pica*, *Pyrhocorax graculus*, *Corvus corone*, *Corvus corax*

Det.: Desbrosse & Mourer-Chauviré

Layer: Lower

Date: LP ?

Fauna: *Tachybaptus ruficollis*, *Lagopus sp.*, *Perdix perdix*, *Gallinula chloropus*, *Tyto alba*, *Apus melba*, *Hirundo daurica*, *Delichon urbica*, *Turdus merula*, *Sylvia atricapilla*, *Pyrhula pyrrhula*, *Garrulus glandarius*, *Pica pica*, *Pyrhocorax graculus*

Det.: Mourer-Chauviré

Stored: Centre de Fouilles Préhistorique de l'Ain, Château de Chenavel

Notes: "sables de base" below Magdalenian

FR 145 Grotte de Macinaggio (Corse)

Type: c

Source: Mourer-Chauviré & Weesie 1986

Date: LP

Fauna: *Bubo insularis*

Det.: Mourer-Chauviré, Wessie

Stored: Département des Sciences de la Terre, Lyon

Notes: Many other unpublished species at this site (C. Mourer-Chauviré *in litt.*)

FR 146 Grotte du Fustié (Ariège)

Alt.: 553

Type: c

Sources: Bertouille & Bouchud 1969

Date: LP "Würm final"

Fauna: *Pyrhcorax graculus*

Det.: Bouchud

Notes: also known as Grotte Bernard

FR 147 Grotte du Lazaret (Alpes-Maritimes)

Alt.: 28

Type: c

Sources: Bouchud 1969; Mourer-Chauviré 1975a; Vilette 1993

Layer: Fond de la Grotte

Date: MP "Riss II-III"

Fauna: *Aquila chrysaetos*, *Accipiter nisus*, *Accipiter gentilis*, *Alectoris graeca mediterranea*, *Alectoris barbara*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Porzana cf. parva*, *Scolopax rusticola*, *Numenius arquata*, *Larus fuscus*, *Columba livia lazaretensis*, *Columba palumbus*, *Bubo bubo*, *Otus scops*, *Aegolius funereus*, *Athene noctua lunellensis*, *Strix aluco*, *Apus apus*, *Picus viridis*, *Dendrocopos major*, *Galerida cristata*, *Hirundo rustica*, *Anthus spinoletta*, *Troglodytes troglodytes*, *Prunella modularis*, *Turdus pilaris*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Sylvia sp.*, *Garrulus glandarius*, *Pica pica*, *Pyrhcorax pyrhcorax primigenius*, *Pyrhcorax graculus cf. vetus*, *Corvus monedula*, *Corvus corone*, *Corvus cf. corax*, *Fringilla coelebs*, *Carduelis carduelis*, *Carduelis flammea*, *Coccothraustes coccothraustes*, *Passer domesticus*, *Petronia petronia*, *Montifringilla nivalis*

Det.: Mourer-Chauviré

Layer: Cabane

Date: MP "Riss III" Acheulean

Fauna: *Lagopus mutus*, *Perdix sp.*, *Columba livia*, *Bubo bubo*, *Otus scops*, *Athene noctua*, *Anthus spinoletta*, *Motacilla alba*, *Cinclus cinclus*, *Troglodytes troglodytes*, *Prunella collaris*, *Monticola solitarius*, *Turdus cf. torquatus*, *Pica sp.?*, *Corvus cf. corone* ? *Corvus corax*

Det.: Bouchud

Notes: Finds from an "Cabane acheulene" (Acheulean dwelling) near the cave entrance

Layer: Entre ?

Date: MP "Riss III"

Fauna: *Aquila chrysaetos*, *Haliaeetus albicilla*, *Falco subbuteo*, *Falco vespertinus*, *Falco tinnunculus*, *Tetrao tetrix*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Crex crex*, *Larus cf. canus*, *Chlidonias hybridus*, *Columba livia lazaretensis*, *Cuculus canorus*, *Bubo bubo*, *Asio flammeus*, *Otus scops*, *Aegolius funereus*, *Athene noctua lunellensis*, *Strix aluco*, *Apus apus*, *Lullula arborea*, *Alauda arvensis*, *Hirundo daurica*, *Turdus pilaris*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Loxia pytyopsittacus*, *Montifringilla nivalis*, *Garrulus glandarius*, *Pyrhcorax pyrhcorax primigenius*, *Pyrhcorax graculus cf. vetus*, *Corvus monedula* ?, *Corvus corone*, *Corvus cf. corax*

Det.: Mourer-Chauviré

Notes: l'Entre de la Grotte

Layer: cIII/1

Date: MP, IS 6 150–125 KA BP

Fauna: *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, cf. *Tringa stagnatilis*, *Sterna* cf. *hirundo*, *Columba livia lazaretensis*, *Asio flammeus*, *Lullula arborea*, *Turdus viscivorus*, *Sturnus vulgaris*, *Pyrrhocorax pyrrhocorax primigenius*, *Corvus monedula*, *Corvus corone*, *Corvus corax*

Layer: cIII/2

Date: MP, IS 6 150–125 KA BP

Fauna: *Aquila chrysaetos*, *Falco tinnunculus*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, cf. *Rallus aquaticus*, *Crex crex*, *Larus* cf. *canus*, *Columba livia lazaretensis*, *Bubo bubo*, *Athene noctua aff lunellensis*, *Strix* cf. *aluco*, *Apus melba*, *Lullula arborea*, *Turdus pilaris*, *Turdus merula*, *Turdus viscivorus*, *Garrulus glandarius*, *Pica pica*, *Pyrrhocorax pyrrhocorax primigenius*, *Pyrrhocorax graculus vetus*, *Corvus monedula*, *Corvus corone*, *Corvus corax*, *Montifringilla nivalis*

Layer: cIII/3

Date: MP, IS 6 150–125 KA BP

Fauna: *Aegypius monachus*, *Gypaetus barbatus*, *Aquila chrysaetos*, *Falco subbuteo*, *Falco* cf. *vespertinus*, *Falco tinnunculus*, *Tetrao tetrix*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Scolopax rusticola*, *Chlidonias hybridus*, *Columba livia lazaretensis*, *Cuculus canorus*, *Bubo bubo*, *Asio flammeus*, *Athene noctua aff lunellensis*, *Strix* cf. *aluco*, *Apus apus*, *Lullula arborea*, *Alauda arvensis*, *Turdus pilaris*, *Turdus merula*, *Turdus viscivorus*, *Sturnus vulgaris*, *Garrulus glandarius*, *Pica pica*, *Pyrrhocorax pyrrhocorax primigenius*, *Pyrrhocorax graculus cf. vetus*, *Corvus monedula*, *Corvus corone*, *Corvus corax*, *Fringilla coelebs*, *Loxia pytyopsittacus*, *Montifringilla nivalis*

Layer: cIII/4

Date: MP, IS 6 150–125 KA BP

Fauna: *Aquila chrysaetos*, cf. *Buteo buteo*, *Haliaeetus albicilla*, *Falco eleonorae*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Columba livia lazaretensis*, *Asio flammeus*, *Athene noctua aff lunellensis*, *Strix* cf. *aluco*, *Lullula arborea*, *Turdus pilaris*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Carpodacus erythrinus*, *Montifringilla nivalis*, *Pica pica*, *Pyrrhocorax pyrrhocorax primigenius*, *Pyrrhocorax graculus cf. vetus*, *Corvus monedula*, *Corvus corone*, *Corvus corax*

Layer: cIII/5

Date: MP, IS 6 150–125 KA BP

Fauna: *Anas* cf. *acuta*, cf. *Hieraaetus fasciatus*, *Falco subbuteo*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Uria* sp., *Columba livia lazaretensis*, *Lullula arborea*, *Oenanthe hispanica*, *Turdus iliacus*, *Turdus viscivorus*, *Plectrophenax nivalis*, *Coccothraustes coccothraustes*, *Montifringilla nivalis*, *Pica pica*, *Pyrrhocorax pyrrhocorax primigenius*, *Pyrrhocorax graculus vetus*, *Corvus monedula*, *Corvus corone*, *Corvus corax*

Layer: cIII/6

Date: MP, IS 6 150–125 KA BP

Fauna: cf. *Anas clypeata*, *Aythya* cf. *marila*, *Aquila chrysaetos*, *Falco eleonorae*, *Falco tinnunculus*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Columba livia lazaretensis*, *Columba* cf. *oenas*, *Nyctea scandiaca*, *Asio otus*, *Asio flammeus*, *Otus scops*, *Apus apus*, *Lullula arborea*, *Erithacus rubecula*, *Turdus pilaris*, *Turdus iliacus*, *Turdus viscivorus*, *Sturnus vulgaris*, *Garrulus glandarius*,

Pica pica, *Pyrrhcorax pyrrhcorax primigenius*, *Pyrrhcorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus corone*, *Corvus corax*, *Plectrophenax nivalis*, *Carpodacus erythrinus*, *Pyrrhula pyrrhula*, *Petronia petronia*, *Montifringilla nivalis*

Layer: cIII/7

Date: MP, IS 6 150–125 KA BP

Fauna: *Aquila chrysaetos*, *Falco* cf. *vespertinus*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Fratercula arctica*, *Columba livia lazaretensis*, *Columba palumbus*, *Asio otus*, *Asio flammeus*, *Aegolius funereus*, *Athene noctua aff lunellensis*, *Apus apus*, *Apus melba*, cf. *Dendrocopus medius*, *Galerida cristata*, *Lullula arborea*, *Alauda arvensis*, *Turdus viscivorus*, *Garrulus glandarius*, *Pica pica*, *Pyrrhcorax pyrrhcorax primigenius*, *Pyrrhcorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus corone*, *Corvus corax*, *Sturnus vulgaris*, *Loxia pytyopsittacus*, *Pinicola enucleator*, *Pyrrhula pyrrhula*, *Emberiza hortulana*

Layer: cIII/8

Date: MP, IS 6 150–125 KA BP

Fauna: *Aegypius monachus*, *Aquila chrysaetos*, *Falco eleonora*, *Falco subbuteo*, *Falco* cf. *columbarius*, *Falco* cf. *vespertinus*, *Falco tinnunculus*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Columba livia lazaretensis*, *Columba palumbus*, *Asio flammeus*, *Otus scops*, *Athene noctua aff lunellensis*, *Apus* cf. *palapus*, *Lullula arborea*, *Anthus pratensis*, *Motacilla alba*, *Phoenicurus phoenicurus*, *Turdus pilaris*, *Turdus viscivorus*, *Pica pica*, *Pyrrhcorax pyrrhcorax primigenius*, *Pyrrhcorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus corone*, *Corvus corax*, *Pinicola enucleator*, *Montifringilla nivalis*, *Emberiza hortulana*

Layer: cIII/9

Date: MP, IS 6 150–125 KA BP

Fauna: *Gypaetus barbatus*, *Aquila chrysaetos*, *Circus* cf. *cyaneus*, *Falco subbuteo*, *Falco* cf. *vespertinus*, *Falco tinnunculus*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Uria* sp., *Columba livia lazaretensis*, *Columba palumbus*, *Asio flammeus*, *Otus scops*, *Aegolius funereus*, *Athene noctua aff lunellensis*, cf. *Dendrocopus major*, cf. *Dendrocopus minor*, *Lullula arborea*, *Turdus pilaris*, *Turdus viscivorus*, *Montifringilla nivalis*, *Garrulus glandarius*, *Pica pica*, *Pyrrhcorax pyrrhcorax primigenius*, *Pyrrhcorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus corone*, *Corvus corax*

Layer: cIII/10

Date: MP, IS 6 150–125 KA BP

Fauna: *Bucephala clangula*, *Aquila chrysaetos*, *Falco eleonora*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Crex crex*, cf. *Charadrius dubius*, *Columba livia lazaretensis*, *Aegolius funereus*, *Apus* cf. *palapus*, cf. *Dendrocopus major*, *Galerida cristata*, *Alauda arvensis*, *Turdus viscivorus*, *Garrulus glandarius*, *Pica pica*, *Pyrrhcorax pyrrhcorax primigenius*, *Pyrrhcorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus corone*, *Corvus corax*, *Pinicola enucleator*, *Montifringilla nivalis*, *Sturnus vulgaris*

Layer: cIII/11

Date: MP, IS 6 150–125 KA BP

Fauna: *Aquila chrysaetos*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Crex crex*, *Scolopax rusticola*, cf. *Tringa stagnatilis*, *Columba livia*

lazaretensis, *Nyctea scandiaca*, *Asio flammeus*, *Galerida cristata*, *Lullula arborea*, *Motacilla alba*, *Turdus iliacus*, *Turdus viscivorus*, *Sturnus vulgaris*, *Pica pica*, *Pyrhcorax pyrhcorax primigenius*, *Pyrhcorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus corone*, *Corvus corax*

Layer: cIII/12

Date: MP, IS 6 150–125 KA BP

Fauna: *Aquila chrysaetos*, *Falco tinnunculus*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Columba livia lazaretensis*, *Asio flammeus*, *Aegolius funereus*, *Lullula arborea*, *Cinclus cinclus*, *Turdus viscivorus*, *Garrulus glandarius*, *Pica pica*, *Pyrhcorax pyrhcorax primigenius*, *Pyrhcorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus corax*

Layer: cIII/13

Date: MP, IS 6 150–125 KA BP

Fauna: *Aquila chrysaetos*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Crex crex*, *Burhinus oedipnemos*, *Columba livia lazaretensis*, *Bubo bubo*, *Otus scops*, *Athene noctua aff. lunellensis*, *Turdus viscivorus*, *Emberiza hortulana*, *Garrulus glandarius*, *Pica pica*, *Pyrhcorax pyrhcorax primigenius*, *Pyrhcorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus corax*

Layer: cIII/14

Date: MP, IS 6 150–125 KA BP

Fauna: *Aquila chrysaetos*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, cf. *Pluvialis squatarola*, *Columba livia lazaretensis*, *Bubo bubo*, *Otus scops*, *Galerida cristata*, *Turdus viscivorus*, *Pica pica*, *Pyrhcorax pyrhcorax primigenius*, *Pyrhcorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus corone*, *Corvus corax*

Layer: cIII/15

Date: MP, IS 6 150–125 KA BP

Fauna: *Aquila chrysaetos*, *Alectoris graeca mediterranea*, *Coturnix coturnix*, *Columba livia lazaretensis*, *Athene noctua aff. lunellensis*, *Apus* cf. *pallidus*, *Turdus viscivorus*, *Sturnus vulgaris*, *Garrulus glandarius*, *Pyrhcorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus corax*

Layer: cIII/16

Date: MP, IS 6 150–125 KA BP

Fauna: *Aquila chrysaetos*, *Alectoris graeca mediterranea*, *Coturnix coturnix*, *Columba livia lazaretensis*, *Pica pica*, *Pyrhcorax pyrhcorax primigenius*, *Pyrhcorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus corone*

Layer: cIII/17

Date: MP, IS 6 150–125 KA BP

Fauna: *Aquila chrysaetos*, *Falco tinnunculus*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Columba livia lazaretensis*, *Otus scops*, *Garrulus glandarius*, *Pica pica*, *Pyrhcorax pyrhcorax primigenius*, *Pyrhcorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus corax*

Layer: cIII/18

Date: MP, IS 6 150–125 KA BP

Fauna: *Aquila chrysaetos*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Columba livia lazaretensis*, *Pica pica*, *Corvus monedula*, *Corvus corone*

Det.: Vilette

Stored: Laboratoire de Préhistoire du Lazaret, Nice

Notes: Entrée de la Grotte

FR 148 Grotte du Lazaret, Locus VIII (Alpes-Maritimes)

Alt.: 28

Type: c

Sources: Mourer-Chauviré 1964, 1975 (Bouchud & Bouchud 1955b, 1959)

Layer: I-II

Date: LP R/W or W I

Fauna: *Columba livia lazaretensis*, *Pyrhcorax pyrrhcorax primigenius*, *Pyrhcorax graculus*, *Corvus* cf. *corax*

Layer: III

Date: LP R/W or W I

Fauna: *Columba livia lazaretensis*, *Hirundo rupestris*, *Sturnus vulgaris*, *Pyrhcorax pyrrhcorax primigenius*, *Pyrhcorax graculus*, *Corvus monedula*, *Passer montanus* ?

Layer: IV

Date: MP "Riss III"

Fauna: *Perdix palaeoperdix*, *Coturnix coturnix*, *Columba livia lazaretensis*, *Columba palumbus*, *Columba oenas*?, *Asio flammeus*?, *Turdus pilaris*, *Turdus merula*, *Garrulus glandarius*, *Pica pica*, *Pyrhcorax pyrrhcorax primigenius*, *Pyrhcorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus* cf. *corax*, *Serinus serinus* ?

Notes: *Columba oenas* only reported by Bouchud & Bouchud

Layer: V

Date: MP "Riss III"

Fauna: *Alectoris graeca mediterranea*, *Coturnix coturnix*, *Rallus aquaticus*, *Columba livia lazaretensis*, *Columba palumbus*, *Dendrocopus leucotus*, *Garrulus glandarius*, *Pica pica*, *Pyrhcorax pyrrhcorax primigenius*, *Pyrhcorax graculus* cf. *vetus*, *Corvus monedula*, *Petronia petronia*, *Montifringilla nivalis*

Layer: VI

Date: MP "Riss III"

Fauna: *Circus* cf. *cyaneus*, *Alectoris graeca mediterranea*, *Alectoris barbara*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Crex crex*, *Tetrax tetrax*, *Columba livia lazaretensis*, *Columba oenas*, *Columba palumbus*, *Jynx torquilla*, *Alauda arvensis*, *Anthus pratensis*, *Prunella collaris*, *Turdus merula*, *Turdus* cf. *torquatus*, *Turdus viscivorus*, *Pica pica*, *Pyrhcorax pyrrhcorax primigenius*, *Pyrhcorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus corone*, *Corvus* cf. *corax*, *Petronia petronia*

Layer: V2

Date: MP "Riss III"

Fauna: *Turdus iliacus*, *Coccothraustes coccothraustes*, *Garrulus glandarius*, *Pica pica*, *Pyrhcorax pyrrhcorax primigenius*, *Pyrhcorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus corone*, *Corvus* cf. *corax*, *Emberiza citrinella*

Layer: V2

Date: MP "Riss III"

Fauna: *Nycticorax nycticorax* ?, *Anas platyrhynchos*, *Aquila chrysaetos*, *Accipiter nisus*, *Falco tinnunculus*, *Tetrao tetrix*, *Alectoris graeca mediterranea*, *Alectoris barbara*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Porzana porzana*, *Crex crex*, *Charadrius*

morinellus?, *Columba livia lazaretensis*, *Columba palumbus*, *Columba oenas* ?, *Asio flammeus*, *Otus scops*, *Dendrocopus major*, *Lullula arborea*, *Alauda arvensis*, *Prunella collaris*, *Turdus pilaris*, *Turdus merula*

Notes: *Columba oenas* only reported by Bouchud & Bouchud

Layer: VI

Date: MP "Riss III"

Fauna: *Alectoris barbara*, *Coturnix coturnix*, *Columba livia lazaretensis*, *Columba oenas* ?, *Bubo bubo*, *Pyrrhonorax pyrrhonorax primigenius*, *Pyrrhonorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus corone*,

Notes: *Columba oenas* only reported by Bouchud & Bouchud

Layer: VII

Date: MP "Riss III"

Fauna: *Coturnix coturnix*, *Columba livia lazaretensis*, *Pyrrhonorax pyrrhonorax primigenius*, *Pyrrhonorax graculus* cf. *vetus*

Layer: VIII

Date: MP "Riss III"

Fauna: *Aquila chrysaetos*, *Buteo buteo*, *Accipiter nisus*, *Falco tinnunculus*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Crex crex*, *Charadrius morinellus* ?, *Columba livia lazaretensis*, *Columba oenas* ?, *Nyctea scandiaca*, *Aegolius funereus*, *Athene noctua lunellensis*, *Alauda arvensis*, *Riparia riparia*, *Hirundo rustica*, *Anthus pratensis*, *Turdus merula*, *Sylvia communis*, *Pica pica*, *Pyrrhonorax pyrrhonorax primigenius*, *Pyrrhonorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus corone*?, *Corvus* cf. *corax*, *Fringilla coelebs* ?, *Coccothraustes coccothraustes*

Notes: *Columba oenas* only reported by Bouchud & Bouchud

Layer: IX

Date: MP "Riss III"

Fauna: *Aegypius monachus*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Crex crex*, *Columba livia lazaretensis*, *Aegolius funereus*, *Prunella collaris* ?, *Turdus pilaris* ?, *Turdus merula*, *Fringilla coelebs*, *Garrulus glandarius*, *Pica pica*, *Pyrrhonorax pyrrhonorax primigenius*, *Pyrrhonorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus corone*, *Emberiza citrinella*

Layer: X

Date: MP "Riss III"

Fauna: *Columba livia lazaretensis*

Layer: XI

Date: MP "Riss II"

Fauna: *Alectoris graeca mediterranea*, *Coturnix coturnix*, *Columba livia lazaretensis*, *Alauda arvensis*, *Turdus merula*, *Pyrrhonorax graculus* cf. *vetus*

Layer: XII

Date: MP "Riss II"

Fauna: *Aquila chrysaetos*, *Tetrao tetrix*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Crex crex*, *Columba livia lazaretensis*, *Athene noctua lunellensis*, *Apus melba*, *Lullula arborea*, *Alauda arvensis*, *Lanius senator* ?, *Prunella collaris* ?, *Saxicola rubetra* ?, *Turdus pilaris*, *Turdus merula*, *Turdus viscivorus*, *Aegithalos caudatus*, *Emberiza citrinella* ?, *Passer montanus* ?, *Garrulus glandarius*, *Pyrrhonorax graculus* cf. *vetus*, *Corvus corone*, *Corvus* cf. *corax*

Layer: XIII

Date: MP "Riss II"

Fauna: *Falco tinnunculus*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Porzana* sp., *Crex crex*, *Columba livia lazaretensis*, *Otus scops*, *Athene noctua lunellensis*, *Coracias garrulus*, *Lullula arborea*, *Alauda arvensis*, *Troglodytes troglodytes*, *Saxicola rubetra*?, *Turdus pilaris*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Sylvia communis*?, *Garrulus glandarius*, *Pica pica*, *Pyrrhcorax pyrrhcorax primigenius*, *Pyrrhcorax graculus* cf. *vetus*, *Corvus corone*, *Corvus* cf. *corax*, *Fringilla coelebs*, *Passer montanus*?, *Emberiza citrinella*

Layer: XIV

Date: MP "Riss II"

Fauna: *Accipiter nisus*, *Accipiter gentilis*, *Falco subbuteo*, *Falco tinnunculus*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Crex crex*, *Columba livia lazaretensis*, *Otus scops*, *Aegolius funereus*, *Strix aluco*, *Apus apus*, *Alauda arvensis*, *Prunella collaris*?, *Saxicola rubetra*, *Turdus pilaris*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Sylvia communis*, *Garrulus glandarius*, *Pica pica*, *Pyrrhcorax pyrrhcorax primigenius*, *Pyrrhcorax graculus* cf. *vetus*, *Corvus corone*, *Fringilla coelebs*, *Passer montanus*, *Emberiza citrinella*?

Layer: XV

Date: MP "Riss II"

Fauna: *Gypaetus barbatus*, *Falco tinnunculus*, *Tetrao tetrix*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Porzana porzana*, *Crex crex*, *Gallinago gallinago*, *Columba livia lazaretensis*, *Otus scops*, *Aegolius funereus*, *Strix aluco*, *Coracias garrulus*, *Picoides tridactylus*, *Lullula arborea*, *Alauda arvensis*, *Troglodytes troglodytes*, *Turdus pilaris*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Emberiza citrinella*?, *Fringilla coelebs*, *Garrulus glandarius*, *Pica pica*, *Pyrrhcorax pyrrhcorax primigenius*, *Pyrrhcorax graculus* cf. *vetus*, *Corvus corone*

Layer: XVI

Date: MP "Riss II"

Fauna: *Coturnix coturnix*, *Columba livia lazaretensis*, *Pyrrhcorax pyrrhcorax primigenius*, *Pyrrhcorax graculus* cf. *vetus*

Layer: XVII

Date: MP "Riss I?"

Fauna: *Columba livia lazaretensis*, *Troglodytes troglodytes*, *Pyrrhcorax graculus* cf. *vetus*, *Corvus corone*, *Corvus antecorax*

Layer: XVIII

Date: MP "Riss I?"

Fauna: *Falco peregrinus*, *Falco tinnunculus*, *Columba livia lazaretensis*, *Turdus viscivorus*, *Pyrrhcorax graculus* cf. *vetus*, *Pyrrhcorax pyrrhcorax primigenius*

Layer: XIX

Date: MP "Riss I?"

Fauna: *Columba livia lazaretensis*

Layer: XX

Date: MP "Riss I?"

Fauna: *Columba livia lazaretensis*

Layer: Unknown

Date: MP "Riss" MNQ 24

Fauna: *Caprimulgus ruficollis*

Det.: Mourer-Chauviré, Bouchud and Bouchud

Stored: Musée de la Ville de Menton

FR 149 Grotte du Moustier (Dordogne)

Alt.: 95

Type: c

Sources: Lambrecht 1933; Milne-Edwards 1867–71, 1875a,b; Wolf 1938–41

Date: LP Mousterian TL=38,400–55,200 BP

Fauna: *Aquila chrysaetos*, *Tetrao tetrix*, *Alcedo atthis*, *Alauda arvensis*, *Corvus monedula*

Det.: Milne-Edwards

Stored: Musée de Préhistoire, Les Eyzies ?

Notes: *Corvus monedula* may be of Holocene age (Milne-Edwards 1875a,b)

FR 150 Grotte du Placard (Charente)

Type: c

Sources: Gordon 1988; Mourer-Chauviré 1975a; Wolf 1938–41 (Maret 1879)

Layer: "Brèche"

Date: LP LG Magdalenian IIIb-IVa

Fauna: *Lagopus* sp., *Nyctea scandiaca*, *Alauda arvensis*, *Turdus iliacus*, *Corvus corax*

Layer: unstratified

Date: LP LG ?

Fauna: *Anas platyrhynchos*, *Nyctea scandiaca*

Det.: Mourer-Chauviré

Stored: Institut de Paléontologie Humaine à Paris and Laboratoire de la Rochefoucault

Date: LP Early Magdalenian & Mousterian

Fauna: *Aquila chrysaetos*, *Lagopus lagopus*, *Tetrao urogallus*, *Rallus aquaticus*, *Nyctea scandiaca*, *Corvus corax*

Notes: These are old records, and the remains stored in the Institut de Paléontologie Humaine and studied by Mourer-Chauviré are likely to be part of these

FR 151 Grotte du Portel (Ariège)

Type: c

Source: Clot & Mourer-Chauviré 1986

Date: LP "below Magdalenian"

Fauna: *Pyrhocorax pyrrhocorax*

Det.: Mourer-Chauviré

Stored: Musée de Bagnères-de-Bigorre ?

Notes: also known as Grotte de Crampagna or Loubens

FR 152 Grotte du Tuteil (Ariège)

Alt.: 920

Type: c

Sources: Astre 1947–48; Clot & Mourer-Chauviré 1986

Date: MP/LP Riss-Würm Ancien or Riss/Würm "Premousterian"

Fauna: *Perdix perdix* ?, *Bubo bubo* ?, *Pica pica* ?, *Pyrrhocorax graculus*

Det.: Astre

Stored: Musée d'Histoire Naturelle de Toulouse ?

FR 153 Grotte d'Aure (?)

Type: c

Sources: Lambrecht 1933; Milne-Edwards 1875a,b

Fauna: *Lagopus lagopus*, *Corvus corone*, *Pyrrhocorax graculus*

Det.: Milne-Edwards

FR 154 Grotte d'Aurignac (Haute Garonne)

Type: c

Sources: Clot & Mourer-Chauviré 1986; Lambrecht 1933; Milne-Edwards 1867-71, 1875a,b; Paris 1912; Wolf 1938-41

Date: LP Aurignacian (Würm III)

Fauna: *Buteo buteo*, *Aquila clanga*, *Aegypius monachus* ?, *Milvus milvus*, *Lagopus lagopus*, *Columba livia*, *Nyctea scandiaca*, *Corvus corax*

Det.: Milne-Edwards

Notes: *Perdix perdix* only mentioned by Lambrecht, presumably in error.

FR 155 Grotte d'Ebbou (Ardèche)

Type: c

Sources: Mourer-Chauviré 1975a, 1977

Date: LP LG Magdalenian Bölling 14C=12,980±220 BP

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Columba livia*, *Pyrrhocorax graculus*

Det.: Mourer-Chauviré

Stored: Musée de Préhistoire d'Orgnac ?

FR 156 Grotte d'Embullia (Pyrénées-Orientale)

Alt.: 470

Type: c

Sources: Clot & Mourer-Chauviré 1986; Vilette 1983

Layer: 1

Date: LP Solutrean supérieur

Fauna: *Aquila chrysaetos*, *Falco subbuteo*, *Perdix perdix*, *Gallinago media*, *Columba livia*, *Columba oenas*, *Galerida cristata*, *Alauda arvensis*, *Oenanthe oenanthe*, *Oenanthe* cf. *leucura*, *Monticola* cf. *saxatilis*, *Turdus viscivorus*, *Pyrrhocorax graculus*, *Corvus* cf. *frugilegus*, *Emberiza hortulana*

Det.: Vilette

Stored: Musée de Préhistoire de Tautavel ?

FR 157 Grotte de l'Escale à Saint-Estève-Janson (Bouche-du-Rhône)

Type: c

Source: Mourer-Chauviré 1975a

Layer: B sup.

Date: MP Early MP "Mindel" MNQ 22

Fauna: *Anas crecca*, *Anas penelope*, *Aquila chrysaetos bonifaci*, *Accipiter gentilis breviodactylus*, *Falco vespertinus*, *Alectoris graeca mediterranea*, *Alectoris barbara*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Tetrax tetrax*, *Gallinago gallinago*, *Columba livia occitanica*, *Bubo bubo davidi*, *Coracias garrulus*, *Turdus iliacus*, *Turdus viscivorus*, *Remiz pendulinus*, *Fringilla coelebs*, *Garrulus glandarius*, *Nucifraga caryocatactes*, *Pyrrhocorax graculus vetus*

Layer: B inf.

Date: MP Early MP "Mindel" MNQ 22

Fauna: *Aquila chrysaetos bonifaci*, *Accipiter gentilis breviodactylus*, *Falco vespertinus*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Porzana porzana*, *Porzana parva*, *Porzana pusilla*, *Gallinago gallinago*, *Columba livia occitanica*, *Bubo bubo davidi*, *Turdus merula*, *Turdus viscivorus*, *Garrulus glandarius*, *Nucifraga caryocatactes*, *Pyrrhocorax graculus vetus*

Layer: B

Date: MP Early MP "Mindel" MNQ 22

Fauna: *Aquila chrysaetos bonifaci*, *Accipiter nisus*, *Accipiter gentilis breviodactylus*, *Circus cf. cyaneus*, *Falco peregrinus*, *Falco subbuteo*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Columba livia occitanica*, *Bubo bubo davidi*, *Asio flammeus*, *Apus cf. submelba*, *Coracias garrulus*, *Picus viridis*, *Lullula arborea*, *Turdus merula*, *Passer domesticus*, *Pyrrhocorax graculus vetus*, *Corvus pliocaenus jánossyi*

Layer: B/C

Date: MP Early MP "Mindel" MNQ 22

Fauna: *Aquila chrysaetos bonifaci*, *Accipiter gentilis breviodactylus*, *Perdix palaeoperdix*

Layer: C

Date: MP Early MP "Mindel" MNQ 22

Fauna: *Anas platyrhynchos*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Columba livia occitanica*, *Bubo bubo davidi*, *Lullula arborea*, *Eremophila alpestris*, *Turdus viscivorus*, *Nucifraga caryocatactes*, *Pyrrhocorax graculus vetus*, *Corvus pliocaenus jánossyi*

Layer: C inc.

Date: MP Early MP "Mindel" MNQ 22

Fauna: *Aquila chrysaetos bonifaci*, *Hieraaetus fasciatus*, *Accipiter gentilis breviodactylus*, *Porzana porzana*, *Nyctea scandiaca gallica*, *Bubo bubo davidi*, *Alauda cf. arvensis*, *Garrulus glandarius*, *Corvus pliocaenus jánossyi*, *Petronia petronia*

Layer: C-D

Date: MP Early MP "Mindel" MNQ 22

Fauna: *Falco peregrinus*, *Alectoris graeca mediterranea*, *Bubo bubo davidi*, *Strix intermedia*

Layer: D

Date: MP Early MP "Mindel" MNQ 22

Fauna: *Accipiter nisus*, *Accipiter gentilis breviodactylus*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Columba livia occitanica*, *Cuculus cf. canorus*, *Bubo bubo davidi*, *Lullula arborea*, *Pyrrhocorax graculus vetus*, *Corvus pliocaenus jánossyi*, *Serinus serinus* ?

Layer: E

Date: MP Early MP "Mindel" MNQ 22

Fauna: *Accipiter gentilis breviodactylus*, *Turdus viscivorus*

Layer: E-F

Date: MP Early MP "Mindel" MNQ 22

Fauna: *Aquila chrysaetos bonifaci*, *Perdix palaeoperdix*, *Lullula arborea*, *Turdus merula*, *Turdus viscivorus*, *Corvus pliocaenus jánossyi*, *Petronia petronia* ?, *Montifringilla nivalis* ?

Layer: F

Date: MP Early MP "Mindel" MNQ 22

Fauna: *Aquila chrysaetos bonifaci*, *Accipiter gentilis breviodactylus*, *Perdix palaeoperdix*, *Porzana parva*, *Columba livia occitanica*, *Bubo bubo davidi*, *Calandrella brachydactyla*, *Melanocorypha* cf. *calandra*, *Galerida cristata*, *Lullula arborea*, *Sylvia nisoria* ?, *Pyrhcorax graculus vetus*, *Corvus pliocaenus jánossyi*, cf. *Plectrophenax nivalis*, *Serinus serinus*, *Petronia petronia* ?

Layer: GF

Date: MP Early MP "Mindel" MNQ 22

Fauna: *Alectoris graeca mediterranea*, *Coturnix coturnix*, *Bubo bubo davidi*, *Dendrocopus major*, *Hirundo rupestris*, *Turdus merula*, *Ficedula albicollis*, *Nucifraga caryocatactes*, *Passer domesticus*

Layer: G

Date: MP Early MP "Mindel" MNQ 22

Fauna: *Anas crecca*, *Aquila chrysaetos bonifaci*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Columba livia occitanica*, *Bubo bubo davidi*, *Asio flammeus* ?, *Otus scops*, *Galerida cristata*, *Turdus merula*, *Turdus viscivorus*, *Nucifraga caryocatactes*, *Pyrhcorax graculus vetus*, *Corvus pliocaenus jánossyi*, *Petronia petronia*

Layer: H

Date: MP Early MP "Mindel" MNQ 22

Fauna: *Anas penelope*, *Aquila chrysaetos bonifaci*, *Aquila clanga*, *Buteo rufinus jansoni*, *Accipiter gentilis breviodactylus*, *Haliaeetus albicilla*, *Falco peregrinus*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Columba livia occitanica*, *Nyctea scandiaca gallica*, *Bubo bubo davidi*, *Lullula arborea*, *Turdus iliacus*, *Turdus viscivorus*, *Sylvia nisoria* ?, *Pica pica major*, *Pyrhcorax graculus vetus*, *Corvus pliocaenus jánossyi*, *Carduelis chloris*, *Carpodacus erythrinus*, *Petronia petronia* ?, *Garrulus glandarius*

Layer: H sup.

Date: MP Early MP "Mindel" MNQ 22

Fauna: *Aquila chrysaetos bonifaci*, *Accipiter gentilis breviodactylus*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Columba livia occitanica*, *Nyctea scandiaca gallica*, *Bubo bubo davidi*, *Eremophila alpestris*, *Turdus merula*, *Turdus viscivorus*, *Pica pica major*, *Pyrhcorax graculus vetus*, *Serinus serinus*, *Carpodacus erythrinus*

Layer: H moy.

Date: MP Early MP "Mindel" MNQ 22

Fauna: *Aquila chrysaetos bonifaci*, *Accipiter gentilis breviodactylus*, *Falco naumanni*, *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Porzana pusilla*, *Columba livia occitanica*, *Nyctea scandiaca gallica*, *Dendrocopus major*, *Alauda* cf. *arvensis*,

Hirundo rupestris, *Turdus viscivorus*, cf. *Aegithalos caudatus*, *Pica pica major*,
Pyrrhonorax graculus vetus, *Emberiza* cf. *citrinella*

Layer: H inf.

Date: MP Early MP "Mindel" MNQ 22

Fauna: *Aquila chrysaetos bonifaci*, *Accipiter gentilis brevidactylus*, *Falco peregrinus*,
Columba livia occitanica, *Nyctea scandiaca gallica*, *Bubo bubo davidi*, *Sylvia niso-*
ria ?, *Pica pica major*, *Pyrrhonorax graculus vetus*

Layer: H base

Date: MP Early MP "Mindel" MNQ 22

Fauna: *Gypaetus barbatus*, *Aquila chrysaetos bonifaci*, *Hieraaetus fasciatus*, *Buteo rufi-*
nus jansoni, *Falco peregrinus*, *Columba livia occitanica*, *Nyctea scandiaca gallica*,
Turdus viscivorus, *Pica pica major*, *Pyrrhonorax graculus vetus*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 158 Grottes de Jaurias (Gironde)

Type: c

Source: Mourer-Chauviré 1975a

Date: LP LG Magdalenian VI

Fauna: *Anas* cf. *platyrhynchos*, *Lagopus* cf. *lagopus*, *Gallinago* cf. *gallinago*, *Nyctea*
scandiaca

Det.: Mourer-Chauviré

Notes: also known as Bisqueytan

FR 159 Grottes de Veyrier (Haute-Savoie)

Type: c

Sources: Hescheler 1949; Lambrecht 1933; Lortet & Chantre 1872; Studer 1896;
 Wolf 1938–41 (Rütimeyer 1873)

Date: LP LG Magdalenian

Fauna: *Ciconia ciconia*, *Anas platyrhynchos*, *Aquila* sp., *Lagopus lagopus*, *Lagopus mu-*
tus, *Tetrao tetrix*, *Gallus gallus* ?, *Turdus philomelos*, *Turdus pilaris*, *Sturnus* sp.

Det.: Rütimeyer; Studer

Stored: Musée d'Histoire Naturelle, Genève

FR 160 Grottes des Baumas de Bails (Alpes-Maritimes)

Type: c

Source: Wolf 1938–41

Date: LP ?

Fauna: *Circus cyaneus*, *Turdus* sp., *Turdus merula*, *Corvus corone*, *Pica pica*

Det.: Rivière ?

FR 162 Hortus (Hérault)

Alt.: 400

Type: c

Sources: Mourer-Chauviré 1972, 1975

Layer: 8 (=Vc)

Date: LP Mousterian

Fauna: *Pyrrhocorax graculus*

Layer: 9(=Vc)

Date: LP Mousterian

Fauna: *Alectoris graeca*, *Pyrrhocorax graculus*

Layer: 10 (=Vc)

Date: LP Mousterian

Fauna: *Alectoris graeca*, *Columba livia*, *Asio flammeus*, *Hirundo daurica*, *Hirundo rupestris*, *Ficedula hypoleuca*, *Sturnus vulgaris*, *Pyrrhocorax graculus*, *Coccothraustes coccothraustes*, *Emberiza citrinella*, *Petronia petronia*

Layer: 11 (=Vc)

Date: LP Mousterian

Fauna: *Alectoris graeca*, *Columba livia*, *Asio flammeus*, *Anthus trivialis*, *Hirundo rupestris*, *Turdus viscivorus*, *Pyrrhocorax graculus*, *Emberiza citrinella*, *Petronia petronia*

Layer: 12 (=Vb)

Date: LP Mousterian

Fauna: *Columba livia*, *Columba palumbus*, *Apus melba*, *Hirundo rupestris*, *Turdus viscivorus*, *Ficedula hypoleuca*, *Sturnus vulgaris*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*, *Coccothraustes coccothraustes*, *Emberiza citrinella*, *Petronia petronia*

Layer: 13 (=Vb)

Date: LP Mousterian

Fauna: *Gyps fulvus*?, *Alectoris graeca*, *Columba livia*, *Apus melba*, *Hirundo rupestris*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*, *Coccothraustes coccothraustes*, *Emberiza citrinella*

Layer: 14 (=Vb)

Date: LP Mousterian

Fauna: *Alectoris graeca*, *Columba livia*, *Asio flammeus*, *Anthus trivialis*, *Motacilla alba*, *Hirundo daurica*, *Hirundo rupestris*, *Turdus viscivorus*, *Pyrrhocorax graculus*, *Coccothraustes coccothraustes*, *Emberiza citrinella*, *Petronia petronia*

Layer: 15 (=Va)

Date: LP Mousterian

Fauna: *Falco peregrinus*, *Alectoris graeca*, *Columba livia*, *Apus melba*, *Riparia riparia*, *Hirundo rupestris*, *Motacilla alba*, *Turdus viscivorus*, *Ficedula hypoleuca*, *Sturnus vulgaris*, *Corvus monedula*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*, *Coccothraustes coccothraustes*, *Emberiza citrinella*, *Petronia petronia*

Layer: 16 (=Va)

Date: LP Mousterian

Fauna: *Alectoris graeca*, *Columba livia*, *Apus melba*, *Hirundo rupestris*, *Turdus viscivorus*, *Sturnus vulgaris*, *Corvus monedula*, *Pyrrhocorax graculus*, *Emberiza citrinella*, *Petronia petronia*

Layer: 17 (=Va)

Date: LP Mousterian

Fauna: *Alectoris graeca*, *Columba livia*, *Hirundo rupestris*, *Ficedula hypoleuca*, *Pyrrhocorax graculus*, *Coccothraustes coccothraustes*, *Petronia petronia*

Layer: 18 (=IVb)

Date: LP Mousterian

Fauna: *Alectoris graeca*, *Coturnix coturnix*, *Apus melba*, *Pyrhcorax graculus*

Layer: 19 (=IVb)

Date: LP Mousterian

Fauna: *Alectoris graeca*, *Columba livia*, *Hirundo rupestris*, *Pyrhcorax graculus*

Layer: 20 (=IVb)

Date: LP Mousterian

Fauna: *Alectoris graeca*, *Columba livia*, *Columba palumbus*, *Apus melba*, *Hirundo rupestris*, *Anthus trivialis*, *Corvus monedula*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Coccothraustes coccothraustes*, *Emberiza citrinella*, *Petronia petronia*

Layer: 21A (=IVb)

Date: LP Mousterian

Fauna: *Alectoris graeca*, *Hirundo daurica*, *Hirundo rupestris*, *Motacilla alba*, *Turdus viscivorus*, *Corvus monedula*, *Nucifraga caryocatactes*, *Pyrhcorax graculus*, *Emberiza citrinella*

Layer: 21B (=IVb)

Date: LP Mousterian

Fauna: *Alectoris graeca*

Layer: 22 (=IVa)

Date: LP Mousterian

Fauna: *Gyps fulvus*, *Alectoris graeca*, *Columba palumbus*, *Apus melba*, *Hirundo rupestris*, *Anthus trivialis*, *Turdus viscivorus*, *Sturnus vulgaris*, *Corvus monedula*, *Nucifraga caryocatactes*, *Pyrhcorax graculus*, *Emberiza citrinella*, *Petronia petronia*

Layer: 23A (=IVa)

Date: LP Mousterian

Fauna: *Perdix perdix*, *Columba palumbus*, *Riparia riparia*, *Hirundo rupestris*, *Turdus viscivorus*, *Sturnus vulgaris*, *Corvus monedula*, *Nucifraga caryocatactes*, *Pyrhcorax graculus*, *Coccothraustes coccothraustes*, *Emberiza citrinella*, *Petronia petronia*

Layer: 23B (=IVa)

Date: LP Mousterian

Fauna: *Apus melba*, *Corvus monedula*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Coccothraustes coccothraustes*, *Petronia petronia*

Layer: 24 (=IVa)

Date: LP Mousterian

Fauna: *Alectoris graeca*, *Alectoris barbara*, *Apus melba*, *Riparia riparia*, *Hirundo rupestris*, *Motacilla alba*, *Turdus viscivorus*, *Corvus monedula*, *Nucifraga caryocatactes*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Emberiza citrinella*

Layer: 25 (=IVa)

Date: LP Mousterian

Fauna: *Riparia riparia*, *Motacilla alba*, *Corvus corone*, *Pyrhcorax graculus*, *Emberiza citrinella*, *Petronia petronia*

Layer: 26 (=III)

Date: LP Mousterian

Fauna: *Apus melba*, *Anthus trivialis*, *Turdus viscivorus*, *Corvus corone*, *Corvus monedula*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Sturnus vulgaris*, *Coccothraustes coccothraustes*, *Emberiza citrinella*, *Petronia petronia*

Layer: 27 (=III)

Date: LP Mousterian

Fauna: *Corvus monedula*, *Pyrrhocorax graculus*, *Sturnus vulgaris*, *Emberiza citrinella*,
Petronia petronia

Layer: 28 (=III)

Date: LP Mousterian

Fauna: *Alectoris graeca*, *Anthus trivialis*, *Pyrrhocorax graculus*

Layer: 29 (=III)

Date: LP Mousterian

Fauna: *Columba livia*

Layer: 32 (=II)

Date: LP Mousterian

Fauna: *Pyrrhocorax graculus*

Layer: OC

Date: LP Mousterian

Fauna: *Perdix perdix*, *Apus melba*, *Corvus monedula*, *Emberiza citrinella*

Notes: Couloir de la Grotte

Layer: unstratified

Date: LP Mousterian

Fauna: *Falco tinnunculus*, *Alectoris graeca*, *Alectoris barbara*, *Perdix perdix*, *Scolopax rusticola*, *Columba livia*, *Athene noctua*, *Apus melba*, *Picus viridis?*, *Anthus trivialis*, *Turdus viscivorus*, *Corvus corone*, *Corvus monedula*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*, *Sturnus vulgaris*, *Coccothraustes coccothraustes*, *Emberiza citrinella*, *Petronia petronia*

Notes: "remanié et couloir de la Grotte" (layers SAR, SARG, SARGbis and SGRC).

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 163 Iguede Pépin (Lot)

Type: c

Source: Philippe et al. 1980

Date: LP LG 14C=11,840±630 BP

Fauna: *Falco tinnunculus*, *Corvus monedula*

Det.: Mourer-Chauviré

Stored: Musée d'Histoire Naturelle de Lyon

Notes: also known as Le Pépin

FR 164 Iguede Saint-Sol-Belcastel (Lot)

Type: c

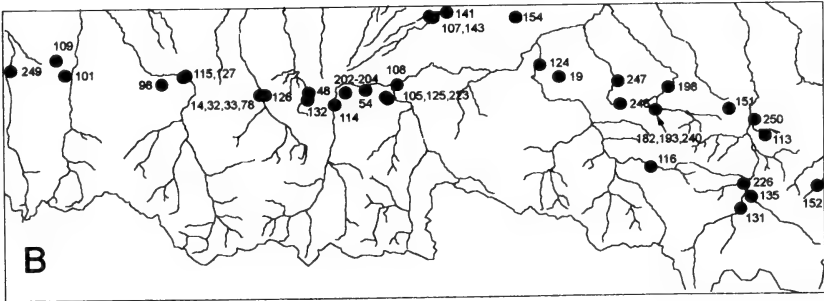
Source: Philippe et al. 1980

Date: MP

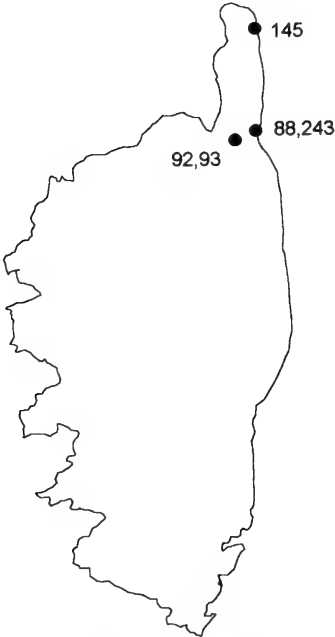
Fauna: *Accipiter gentilis* cf. *brevidactylus*, *Perdix palaeoperdix*, *Turdus merula*, *Corvus corone*, *Corvus phocaenus*

Det.: Mourer-Chauviré

Stored: Musée d'Histoire Naturelle de Lyon



Not exactly localized sites in this area: 146



Not exactly localized sites in this area: 91,195

FRANCE (FR)

FR 165 Isturitz (Pyrénées-Atlantiques)

Alt.: 180

Type: c

Sources: Altuna 1972; Bahn 1983; Bouchud 1952c; Musil 1980b; St Périer 1930; 1936, 1952; Wolf 1938–41

Layer: Salle de St Martin

Date: LP LG Magdalenian

Fauna: *Gavia arctica/immer*, *Puffinus griseus*, *Anas platyrhynchos*, *Mergus* sp., *Lagopus* sp., *Larus* sp., *Larus argentatus*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*, *Corvus corax*

Det.: Boule

Layer: la Grand Salle Niveau I

Date: LP LG Magdalenian

Fauna: *Anas platyrhynchos*, *Mergus merganser*, *Accipiter gentilis*, *Buteo* sp., *Buteo* cf. *rufinus*, *Aquila* sp., *Aquila chrysaetos*, *Gypaetus barbatus*, *Falco eleonora*, *Falco sub-buteo*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao urogallus*, *Tetrao tetrax*, *Perdix perdix*, *Perdix* sp., *Larus* sp., *Columba oenas*, *Nyctea scandiaca*, *Bubo* sp., *Strix* sp., *Sturnia ulula*, *Turdus merula*, *Corvus corax*, *Corvus corone*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*

Det.: Boule

Layer: la Grand Salle Niveau II

Date: LP LG Magdalenian

Fauna: *Anas platyrhynchos*, *Mergus serrator*, *Accipiter gentilis*, *Buteo* cf. *rufinus*, *Buteo* sp., *Aquila chrysaetos*, *Falco* cf. *eleonora*, *Falco* sp., *Lagopus mutus*, *Perdix* sp., *Nyctea scandiaca*, *Bubo bubo*, *Sturnus vulgaris*, *Corvus corax*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*

Det.: Boule

Layer: la Grand Salle, unstratified

Date: LP LG Magdalenian

Fauna: *Falco tinnunculus*, *Tetrax tetrax*, Rallidae

Det.: Boule

Layer: ?

Date: LP LG Early Magdalenian

Fauna: *Anser* sp., *Anas* sp., *Lagopus* sp., *Larus* sp., *Larus argentatus*, *Corvus corax*, *Pyrhcorax graculus*, *Pyrhcorax pyrhcorax*

Layer: ?

Date: LP Lower Solutrean

Fauna: *Lagopus* sp., *Nyctea scandiaca*

Layer: ?

Date: LP Aurignacian Final

Fauna: *Anas platyrhynchos*, *Mergus serrator*, *Falco tinnunculus*, *Lagopus lagopus*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*, *Corvus monedula*, *Corvus corax*

Det.: Bouchud

Layer: ?

Date: LP Aurignacian Superieur

Fauna: *Melanitta fusca*, *Mergus serrator*, *Gyps fulvus*, *Aquila chrysaetos*, *Buteo lagopus*, *Buteo buteo*, *Falco peregrinus*, *Lagopus mutus*, *Tetrao tetrax*, *Tyto alba*, *Otus scops*, *Nyctea scandiaca*, *Turdus torquatus*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*, *Nucifraga caryocatactes*, *Corvus monedula*, *Corvus corax*

Det.: Bouchud

Layer: S II

Date: LP Middle Aurignacian

Fauna: *Anas platyrhynchos*, *Falco tinnunculus*, *Falco peregrinus*, *Buteo rufinus*, *Tetrao tetrix*, *Alectoris graeca*, *Corvus corax*, *Pyrhacorax graculus*

Layer: Ist V (La Grand Salle)

Date: LP Middle Aurignacian

Fauna: *Aquila chrysaetos*, *Corvus corax*

Layer: X, Y, A

Date: LP Middle Aurignacian

Fauna: *Neophron percnopterus*, *Nyctea scandiaca*, *Pyrhacorax graculus*

Notes: Passerard evcavations

Layer: S III

Date: LP Typical Aurignacian

Fauna: *Aegypius monachus*, *Bubo bubo*, *Nyctea scandiaca*, *Pyrhacorax graculus*, *Corvus corax*, *Pica pica*, *Pyrhacorax pyrrhacorax*

Layer: ?

Date: LP Middle Aurignacian

Fauna: *Tadorna tadorna*, *Anas platyrhynchos*, *Anas clypeata*, *Mergus serrator*, *Buteo rufinus*, *Falco tinnunculus*, *Falco peregrinus*, *Tetrao tetrix*, *Tetrao urogallus*, *Pyrhacorax graculus*, *Pyrhacorax pyrrhacorax*, *Corvus corax*

Det.: Bouchud

Layer: ?

Date: LP

Fauna: *Lagopus mutus*

Stored: Musée des Antiquités Nationales, St-Germain-en-Laye (Yvelines) (partly) and Département des Sciences de la Terre, Lyon

Notes: Passerard evcavations

FR 166 Jaurens à Nespouls (Corrèze)

Type: c

Sources: Mourer-Chauviré 1975a, 1979

Date: LP 14C = 29,300 ± 1,400, 30,350 + 3,000–1,900, 32,630 + 2,900–2,100, 29,700 + 1,500–1,300 BP

Fauna: *Perdix perdix*, *Columba livia*, *Nyctea scandiaca*, *Alauda arvensis*, *Hirundo daurica*, *Carduelis chloris* ?, *Serinus citrinella* ?, *Sturnus vulgaris*, *Pyrhacorax graculus*, *Corvus monedula*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

Notes: *Turdus merula* also mentioned (1975).

FR 167 Jobertas (Gard)

Sources: Lambrecht 1933; Milne-Edwards 1867–71, 1875a,b

Fauna: *Perdix perdix*

Det.: Serres

Notes: Milne-Edwards (1875a,b) thought it likely that the remains from this site are actually *Lagopus*

FR 168 La Balme à Cuiseaux (Saône-et-Loire)

Type: c

Source: Mourer-Chauviré 1975a

Layer: C

Date: LP Between Perigordien and Magdalenian

Fauna: *Tetrao tetrix*

Det.: Mourer-Chauviré

Stored: Musée de Lons-le-Saunier ?

FR 169 La Colombiere (Ain)

Alt.: 270

Type: c

Sources: Mourer-Chauviré 1975a, 1979c; Musil 1980b; Wolf 1938–41 (Mayet & Pissot 1915)

Layer: D

Date: LP Perigordien superieur 14C=11,750±600–15,500±700 BP

Fauna: *Anser* sp., *Tadorna tadorna*, *Anas platyrhynchos*, *Anas crecca*, *Anas strepera*, *Melanitta nigra*, *Mergus albellus*, *Circus* cf. *macrourus*, cf. *Circaetus gallicus*, *Falco peregrinus*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Coturnix coturnix*, *Gallus gallus*, *Rallus aquaticus*, *Haematopus ostralegus*, *Pluvialis apricaria*, *Pluvialis squatarola*, *Charadrius morinellus*, *Gallinago gallinago*, *Gallinago media*, *Lymnocyptes minimus*, *Scolopax rusticola*, *Calidris canutus*, *Calidris alpina*, *Stercorarius parasiticus*, *Larus fuscus*, *Larus canus*, *Bubo bubo*, *Asio flammeus*, *Jynx torquilla*, *Galerida cristata*, *Alauda arvensis*, *Hirundo rustica*, *Cinclus cinclus*, *Oenanthe oenanthe*, *Turdus merula*, *Turdus viscivorus*, *Plectrophenax nivalis*, *Carduelis Carduelis*, *Passer domesticus*, *Passer montanus*, *Montifringilla nivalis*, *Pica pica*, *Pyrhcorax graculus*, *Corvus monedula*, *Corvus corax*

Det.: Newton; Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

Notes: Newtons' list revised by Mourer-Chauviré

FR 170 La Crouzade (Aude)

Alt.: 50

Type: c

Sources: Clot & Mourer-Chauviré 1986; Mourer-Chauviré 1975a

Layer: 3 (=C)

Date: LP LG Azilian

Fauna: *Perdix perdix*, *Columba livia*, *Galerida cristata*, *Pyrhcorax graculus*

Layer: 4–1 (=D)

Date: LP LG Magdalenian V

Fauna: *Anas platyrhynchos*, *Accipiter gentilis*, *Columba livia*, *Garrulus glandarius*, *Pyrhcorax graculus*

Layer: 4–2 (=D)

Date: LP LG Magdalenian V

Fauna: *Aquila chrysaetos*, *Columba livia*, *Pyrhcorax graculus*, *Corvus corax*

Layer: 5–2 (=F)

Date: LP Aurignacian-Perigordien superieur

Fauna: *Gypaetus barbatus*, *Aquila chrysaetos*, *Lagopus* cf. *lagopus*, *Perdix perdix*,
Columba livia, *Pyrhcorax graculus*

Layer: 6 (=G)

Date: LP Mousterian "Würm II"

Fauna: *Columba livia*, *Pyrhcorax graculus*, *Pyrhcorax pyrrhcorax*

Layer: 7 (=G)

Date: LP Mousterian "Würm II"

Fauna: *Accipiter nisus*, *Columba livia*, *Pyrhcorax graculus*

Layer: 8 (=G)

Date: LP Mousterian "Würm II"

Fauna: *Columba livia*, *Pyrhcorax graculus*, *Pyrhcorax pyrrhcorax*

Layer: unstratified

Date: LP/Hol

Fauna: *Anas crecca*, *Anas clypeata*, *Clangula hyemalis*, *Falco rusticolus*, *Lagopus* cf.
lagopus, *Coturnix coturnix*, *Charadrius morinellus*, *Columba livia*, *Nyctea scandi-*
aca, *Turdus merula*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Det.: Mourer-Chauviré

Stored: Musée Archéologique de Narbonne; Département des Sciences de la
Terre, Lyon

Notes: also known as grotte de la Crouzade

FR 171 La Fage (Corrèze)

Type: c

Sources: Mourer-Chauviré 1975a,b,c

Layer: 2–3

Date: MP Late MP "Riss 1–Inter Riss II/III" MNQ 24

Fauna: *Mergus serrator*, *Falco tinnunculus atavus*, *Tetrao tetrix longipes*, *Alectoris graeca*
martelensis, *Perdix palaeoperdix*, *Coturnix coturnix*, *Crex crex*, *Pluvialis squatarola*,
Tringa stagnatilis, *Columba livia minuta*, *Aegolius funereus* ?, *Dendrocopus major*,
Calandrella brachydactyla, *Galerida cristata*, *Alauda arvensis*, *Hirundo daurica*,
Anthus spinoletta, *Saxicola rubetra*, *Luscinia luscinia*, *Turdus pilaris*, *Turdus*
merula, *Turdus viscivorus*, *Carduelis flammea*, *Pica pica*, *Pyrhcorax graculus* cf.
vetus, *Corvus monedula*, *Corvus antecorax*

Det.: Mourer-Chauviré

Stored: Musée d'Histoire Naturelle de Lyon

Layer: 4

Date: MP Late MP "Riss 1–Inter Riss II/III" MNQ 24

Fauna: *Falco tinnunculus atavus*, *Lagopus mutus corrensensis*, *Perdix palaeoperdix*, *Co-*
turnix coturnix, *Charadrius morinellus*, *Gallinago media*, *Galerida cristata*, *Alauda*
arvensis, *Anthus spinoletta*, *Turdus pilaris*, *Turdus merula*, *Pica pica*, *Pyrhcorax*
graculus cf. *vetus*, *Corvus antecorax*

Layer: 41

Date: MP Late MP "Riss 1–Inter Riss II/III" MNQ 24

Fauna: *Aquila chrysaetos*, *Falco tinnunculus atavus*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Tringa totanus*, *Galerida cristata*, *Alauda arvensis*, *Anthus spinoletta*, *Turdus pilaris*, *Turdus merula*, *Turdus viscivorus*, *Pyrrhcorax graculus* cf. *vetus*, *Corvus antecorax*

Layer: CO

Date: MP Late MP "Riss I–Inter Riss II/III" MNQ 24

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Aegypius monachus*, *Aquila chrysaetos*, *Buteo buteo*, *Accipiter nisus*, *Circus macrourus*, *Falco subbuteo*, *Falco columbarius*, *Falco naumanni*, *Falco tinnunculus atavus*, *Lagopus lagopus noaillensis*, *Lagopus mutus corezensis*, *Tetrao tetrix longipes*, *Tetrao urogallus*, *Alectoris graeca martelensis*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Porzana porzana*, *Crex crex*, *Otis tarda*, *Tetrax tetrax*, *Alauda arvensis*, *Hirundo rupestris*, *Hirundo rustica*, *Hirundo daurica*, *Anthus campestris*, *Anthus trivialis*, *Anthus spinoletta*, *Motacilla flava*, *Cinclus cinclus*, *Saxicola rubetra*, *Monticola saxatilis*, *Luscinia luscinia*, *Turdus pilaris*, *Turdus merula*, *Turdus viscivorus*, *Pica pica*, *Pyrrhcorax pyrrhcorax* cf. *primigenius*, *Pyrrhcorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus antecorax*, *Plectrophenax nivalis*, *Carduelis cannabina*, *Carduelis flammea*, *Serinus citrinella*?, *Petronia petronia*, *Montifringilla nivalis*, *Miliaria calandra*, *Emberiza citrinella*

Layer: 40

Date: MP Late MP "Riss I–Inter Riss II/III" MNQ 24

Fauna: *Anas platyrhynchos*, *Falco columbarius*, *Falco naumanni*, *Falco tinnunculus atavus*, *Lagopus lagopus noaillensis*, *Lagopus mutus corezensis*, *Tetrao tetrix longipes*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Tetrax tetrax*, *Pluvialis squatarola*, *Charadrius morinellus*, *Gallinago gallinago*, *Scolopax rusticola*, *Tringa totanus*, *Tringa stagnatilis*, *Calidris canutus*, *Phalaropus fulicarius*, *Columba livia minuta*, *Nyctea scandiaca gallica*, *Asio flammeus*, *Aegolius funereus*?, *Apus apus*, *Picus viridis*, *Galerida cristata*, *Lullula arborea*, *Alauda arvensis*, *Hirundo daurica*, *Turdus pilaris*, *Turdus merula*, *Turdus viscivorus*, *Pica pica*, *Pyrrhcorax pyrrhcorax* cf. *primigenius*, *Pyrrhcorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus antecorax*, *Carduelis flammea*?, *Petronia petronia*, *Montifringilla nivalis*

Layer: 39

Date: MP Late MP "Riss I–Inter Riss II/III" MNQ 24

Fauna: *Anas crecca*, *Falco columbarius*, *Falco tinnunculus atavus*, *Lagopus mutus corezensis*, *Tetrao tetrix longipes*, *Tetrao urogallus*, *Perdix palaeoperdix*, *Tetrax tetrax*, *Vanellus vanellus*, *Pluvialis squatarola*, *Charadrius morinellus*, *Scolopax rusticola*, *Phalaropus fulicarius*, *Columba livia minuta*, *Columba oenas*, *Columba palumbus*, *Asio flammeus*, *Aegolius funereus*?, *Picus viridis*, *Dendrocopos major*, *Jynx torquilla*, *Calandrella brachydactyla*, *Galerida cristata*, *Lullula arborea*, *Alauda arvensis*, *Hirundo daurica*, *Cinclus cinclus*, *Monticola saxatilis*, *Turdus pilaris*, *Turdus merula*, *Turdus viscivorus*, *Pyrrhcorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus antecorax*, *Emberiza citrinella*, *Petronia petronia*, *Montifringilla nivalis*

Layer: 38

Date: MP Late MP "Riss I–Inter Riss II/III" MNQ 24

Fauna: *Anas platyrhynchos*, *Falco tinnunculus atavus*, *Tetrao tetrix longipes*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Pluvialis apricaria*, *Pluvialis squatarola*, *Charadrius morinellus*, *Tringa totanus*, *Alle alle*, *Columba livia minuta*, *Picus*

viridis, *Calandrella brachydactyla*, *Galerida cristata*, *Lullula arborea*, *Hirundo rupestris*, *Anthus campestris*, *Anthus spinoletta*, *Luscinia luscinia*, *Turdus pilaris*, *Turdus merula*, *Turdus viscivorus*, *Petronia petronia*, *Pica pica*, *Pyrrhonorax pyrrhonorax* cf. *primigenius*, *Pyrrhonorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus antecorax*

Layer: 37

Date: MP Late MP "Riss I–Inter Riss II/III" MNQ 24

Fauna: *Oceanodroma leucorhoa*, *Falco subbuteo*, *Falco columbarius*, *Falco tinnunculus atavus*, *Lagopus mutus corzezensis*, *Tetrao tetrix longipes*, *Tetrao urogallus*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Pluvialis squatarola*, *Charadrius morinellus*, *Columba livia minuta*, *Asio flammeus*, *Aegolius funereus* ?, *Calandrella brachydactyla*, *Galerida cristata*, *Lullula arborea*, *Alauda arvensis*, *Anthus spinoletta*, *Luscinia luscinia*, *Turdus pilaris*, *Turdus merula*, *Pica pica*, *Pyrrhonorax graculus* cf. *vetus*, *Corvus monedula*, *Corvus antecorax*, *Petronia petronia*

Layer: 36

Date: MP Late MP "Riss I–Inter Riss II/III" MNQ 24

Fauna: *Milvus* cf. *migrans*, *Falco tinnunculus atavus*, *Tetrao tetrix longipes*, *Alectoris graeca martelensis*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Charadrius morinellus*, *Gallinago gallinago*, *Scolopax rusticola*, *Columba livia minuta*, *Columba oenas*, *Asio flammeus*, *Picus viridis*, *Galerida cristata*, *Alauda arvensis*, *Hirundo daurica*, *Saxicola rubetra*, *Turdus pilaris*, *Turdus merula*, *Turdus viscivorus*, *Pyrrhonorax pyrrhonorax* cf. *primigenius*, *Pyrrhonorax graculus* cf. *vetus*, *Corvus antecorax*

Layer: 35

Date: MP Late MP "Riss I–Inter Riss II/III" MNQ 24

Fauna: *Falco columbarius*, *Falco tinnunculus atavus*, *Tetrao tetrix longipes*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Pluvialis apricaria*, *Pluvialis squatarola*, *Charadrius morinellus*, cf. *Arenaria interpres*, *Gallinago media*, *Stercorarius pomarinus philippi*, *Columba livia minuta*, *Columba palumbus*, *Asio flammeus*, *Picus viridis*, *Calandrella brachydactyla*, *Galerida cristata*, *Lullula arborea*, *Alauda arvensis*, *Hirundo rupestris*, *Cinclus cinclus*, *Turdus pilaris*, *Turdus merula*, *Turdus viscivorus*, *Pica pica*, *Pyrrhonorax pyrrhonorax* cf. *primigenius*, *Pyrrhonorax graculus* cf. *vetus*, *Corvus antecorax*

Layer: 34

Date: MP Late MP "Riss I–Inter Riss II/III" MNQ 24

Fauna: *Falco peregrinus*, *Falco subbuteo*, *Falco columbarius*, *Falco naumanni*, *Falco tinnunculus atavus*, *Lagopus lagopus noaillensis*, *Tetrao tetrix longipes*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Vanellus vanellus*, *Pluvialis apricaria*, *Pluvialis squatarola*, *Charadrius morinellus*, *Gallinago media*, *Scolopax rusticola*, *Tringa stagnatilis*, *Phalaropus fulicarius*, *Chlidonias niger* ?, *Columba livia minuta*, *Columba oenas*, *Cuculus canorus*, *Asio flammeus*, *Caprimulgus europaeus*, *Calandrella brachydactyla*, *Galerida cristata*, *Lullula arborea*, *Alauda arvensis*, *Hirundo rupestris*, *Luscinia luscinia*, *Turdus pilaris*, *Turdus merula*, *Turdus viscivorus*, *Pica pica*, *Pyrrhonorax graculus* cf. *vetus*, *Corvus antecorax*, *Passer domesticus*, *Petronia petronia*

Layer: 33

Date: MP Late MP "Riss I–Inter Riss II/III" MNQ 24

Fauna: *Anas platyrhynchos*, *Mergus merganser*, *Falco naumanni*, *Falco tinnunculus atavus*, *Lagopus mutus corzezensis*, *Tetrao tetrix longipes*, *Alectoris graeca martelensis*

sis, Perdix palaeoperdix, Coturnix coturnix, Porzana porzana, Vanellus vanellus, Pluvialis apricaria, Pluvialis squatarola, Charadrius morinellus, cf. Arenaria interpres, Gallinago media, Scolopax rusticola, Tringa totanus, Columba livia minuta, Cuculus canorus, Asio flammeus, cf. Aegolius funereus, Calandrella brachydactyla, Galerida cristata, Lullula arborea, Hirundo daurica, Anthus campestris, Saxicola rubetra, Luscinia luscinia, Turdus pilaris, Turdus merula, Turdus viscivorus, Pyrrhcorax pyrrhcorax cf. primigenius, Pyrrhcorax graculus cf. vetus, Corvus monedula, Corvus plicicaenus jánossyi, Carduelis flammea, Petronia petronia

Layer: 32

Date: MP Late MP "Riss 1–Inter Riss II/III" MNQ 24

Fauna: *Anas platyrhynchos, Falco columbarius, Falco naumanni, Falco tinnunculus atavus, Tetrao tetrix longipes, Alectoris graeca martelensis, Perdix palaeoperdix, Coturnix coturnix, Porzana porzana, Vanellus vanellus, Pluvialis squatarola, Charadrius morinellus, Scolopax rusticola, Columba livia minuta, Columba oenas, Cuculus canorus, Aegolius funereus ?, Galerida cristata, Lullula arborea, Cinclus cinclus, Turdus pilaris, Turdus merula, Turdus iliacus, Turdus viscivorus, Pica pica, Pyrrhcorax pyrrhcorax cf. primigenius, Pyrrhcorax graculus cf. vetus, Corvus antecorax*

Layer: 31

Date: MP Late MP "Riss 1–Inter Riss II/III" MNQ 24

Fauna: *Falco tinnunculus atavus, Perdix palaeoperdix, Coturnix coturnix, Rallus aquaticus, Porzana parva, Pluvialis squatarola, Charadrius morinellus, Tringa stagnatilis, Phalaropus fulicarius, Columba livia minuta, Cuculus canorus, Calandrella brachydactyla, Galerida cristata, Lullula arborea, Alauda arvensis, Hirundo daurica, Cinclus cinclus, Turdus pilaris, Turdus merula, Emberiza citrinella, Pyrrhcorax pyrrhcorax cf. primigenius, Pyrrhcorax graculus cf. vetus, Corvus monedula, Corvus antecorax*

Layer: 30

Date: MP Late MP "Riss 1–Inter Riss II/III" MNQ 24

Fauna: *Tetrao tetrix longipes, Perdix palaeoperdix, Coturnix coturnix, Rallus aquaticus, Crex crex, Pluvialis squatarola, Charadrius morinellus, Picus viridis, Galerida cristata, Alauda arvensis, Anthus spinoletta, Saxicola rubetra, Luscinia luscinia, Turdus pilaris, Turdus merula, Montifringilla nivalis, Pyrrhcorax pyrrhcorax cf. primigenius, Pyrrhcorax graculus cf. vetus, Corvus antecorax*

Layer: 29

Date: MP Late MP "Riss 1–Inter Riss II/III" MNQ 24

Fauna: *Falco subbuteo, Perdix palaeoperdix, Charadrius morinellus, Scolopax rusticola, Galerida cristata, Hirundo rupestris, Hirundo daurica, Pyrrhcorax graculus cf. vetus, Corvus antecorax, Emberiza citrinella*

Layer: unstratified

Date: MP Late MP MNQ 24

Fauna: *Anas clypeata, Mergus albellus, Circus cf. cyaneus, Circus cf. pygargus, Falco antiquus, Lagopus sp., Athene noctua, Sylvia atricapilla, Sylvia communis, Nucifraga caryocatactes*

Det.: Mourer-Chauviré

Stored: Musée d'Histoire Naturelle de Lyon

Notes: also known as Abimes de la Fage

FR 172 La Ferrassie (Dordogne)

Alt.: 120

Type: c

Sources: Delpech 1975, 1983, Mourer-Chauviré 1984a

Layer: D1

Date: LP Würm III "Périgord VII" Perigordien à elements tronques

Fauna: *Perdix perdix*

Layer: D2

Date: LP Würm III "Périgord VI" Perigordien à Font-Robert, $14C=22,520\pm 500, 23,960\pm 550, 24,650\pm 550$ D2x $14C=27,900\pm 770$, D2h $27,530\pm 720$ Fauna: *Perdix perdix*

Layer: D3

Date: LP Würm III "Périgord VI" Perigordien à Font-Robert

Fauna: *Perdix perdix*, *Delichon urbica*, *Petronia petronia*

Layer: D4

Date: LP Würm III "Périgord V" Perigordien à Font-Robert

Fauna: *Galerida cristata*

Layer: E

Date: LP Würm III "Périgord VI" Perigordien à Font-Robert $14C=26,250\pm 620$ BPFauna: *Petronia petronia*

Layer: E1d

Date: LP Würm III "Périgord VI" Perigordien à Font-Robert $14C=22,520\pm 550, 23,580\pm 550$ BPFauna: *Lagopus* sp.

Layer: E'1

Date: LP Würm III "Périgord V" Perigordien à Font-Robert $14C=22,520\pm 550, 23,580\pm 550$ BPFauna: *Galerida cristata*, *Lullula arborea*

Layer: F

Date: LP Würm III "Périgord V" Aurignacien IV $14C=22,200\pm 650$ BPFauna: *Pluvialis squatarola*, *Charadrius morinellus*, *Calidris canutus*, *Lullula arborea*, *Corvus corax*

Layer: F4

Date: LP Würm III "Périgord V" Aurignacien IV $14C=22,200\pm 650$ BP (F)Fauna: *Perdix perdix*

Layer: G1

Date: LP Würm III "Périgord V" Aurignacien IV $14C=29,000\pm 850, 21,100\pm 170, 23,000\pm 240$ BPFauna: *Petronia petronia*, *Lagopus* sp., *Perdix perdix*, *Lullula arborea*

Layer: G1b

Date: LP Würm III "Périgord V" Aurignacien IV $14C=29000\pm 850, 21100\pm 170, 23000\pm 240$ BPFauna: *Perdix perdix*, *Coturnix coturnix*, *Cinclus cinclus*, *Turdus pilaris*

Layer: G1c

Date: LP Würm III "Périgord V" Aurignacien IV $14C= 29,000\pm 850, 21,100\pm 170, 23,000\pm 240$ BP

Fauna: *Perdix perdix*, *Pluvialis squatarola*, *Charadrius morinellus*, *Actitis hypoleucos*,
Galerida cristata, *Lullula arborea*, *Cinclus cinclus*, *Corvus corax*

Layer: Gc

Date: LP Würm III "Périgord V" Aurignacian IV

Fauna: *Delichon urbica*

Layer: H

Date: LP Würm III "Périgord IV" Aurignacian III

Fauna: *Cinclus cinclus*, *Falco tinnunculus*, *Lagopus mutus*, *Lagopus* sp., *Tetrao tetrix*,
Perdix perdix, *Charadrius morinellus*, *Calidris canutus*, *Calandrella brachydactyla*,
Melanocorypha calandra, *Galerida cristata*, *Lullula arborea*, *Delichon urbica*, *Cin-*
clus cinclus, *Turdus pilaris*, *Turdus merula*, *Petronia petronia*

Layer: H1

Date: LP Würm III "Périgord IV" Aurignacian III

Fauna: *Lagopus mutus*, *Lagopus* sp., *Pluvialis squatarola*, *Charadrius morinellus*, *Gal-*
linago media, *Calandrella brachydactyla*, *Galerida cristata*, *Lullula arborea*, *Del-*
ichon urbica, *Cinclus cinclus*, *Turdus merula*, *Carduelis flammea*

Layer: H2

Date: LP Würm III "Périgord IV" Aurignacian III

Fauna: *Aquila chrysaetos*, *Perdix perdix*, *Lullula arborea*, *Emberiza citrinella*, *Pyrhoco-*
rax graculus

Layer: H2n

Date: LP Würm III "Périgord IV" Aurignacian III

Fauna: *Pyrhocorax graculus*

Layer: H'3

Date: LP Würm III "Périgord IV" Aurignacian III

Fauna: *Perdix perdix*

Layer: H3

Date: LP Würm III "Périgord IV" Aurignacian III

Fauna: *Corvus corax*

Layer: H4

Date: LP Würm III "Périgord IV" Aurignacian III

Fauna: *Lullula arborea*

Layer: base H

Date: LP Würm III "Périgord IV" Aurignacian III

Fauna: *Lagopus* sp., *Galerida cristata*, *Emberiza citrinella*

Layer: I1

Date: LP Würm III "Périgord IV" Aurignacian III 14C=28,700±250 BP

Fauna: *Anas crecca*, *Lagopus* sp., *Delichon urbica*

Layer: I2

Date: LP Würm III "Périgord III" Aurignacian III 14C=25,500±250 BP

Fauna: *Perdix perdix*, *Tetrao tetrix*, *Coturnix coturnix*, *Charadrius morinellus*, *Actitis hy-*
poleucos, *Melanocorypha calandra*, *Galerida cristata*, *Lullula arborea*, *Hirundo ru-*
pestris, *Turdus pilaris*, *Turdus merula*, *Petronia petronia*

Layer: I2/s

Date: LP Würm III "Périgord III" Aurignacian III 14C=25,500±250 BP

Fauna: *Falco tinnunculus*, *Perdix perdix*, *Calidris alpina*, *Lullula arborea*

Layer: I2-3

Date: LP Würm III "Périgord III" Aurignacian III 14C=25,500±250 BP (date: applies to I2)

Fauna: *Tetrao tetrix*

Layer: I3

Date: LP Würm III "Périgord III" Aurignacian III

Fauna: *Perdix perdix*

Layer: J

Date: LP Würm III "Périgord III" Aurignacian II 14C=26,750±250 BP

Fauna: *Perdix perdix*, *Lullula arborea*

Layer: J1

Date: LP Würm III "Périgord III" Aurignacian II 14C=26,750±250 BP

Fauna: *Perdix perdix*

Layer: J2

Date: LP Würm III "Périgord III" Aurignacian II

Fauna: *Perdix perdix*

Layer: J3

Date: LP Würm III "Périgord III" Aurignacian II

Fauna: *Delichon urbica*

Layer: 56 tamis

Date: LP Würm III "Périgord III"

Fauna: *Perdix perdix*, *Actitis hypoleucos*

Layer: K1

Date: LP Würm III "Périgord III" Aurignacian II, 14C K3=28,820±1,500 BP

Fauna: *Delichon urbica*

Layer: K4

Date: LP Würm III "Périgord II" Aurignacian II 14C K4=28,600±1,050, 31,300±300 BP

Fauna: *Aegypius monachus*

Layer: K6

Date: LP Würm III "Périgord II" Aurignacian I 14C=31,230±360, 33,200±800,35,000 BP

Fauna: *Lagopus* sp., *Petronia petronia*

Layer: K7

Date: LP Würm III "Périgord II"

Fauna: *Hirundo rupestris*

Layer: L2b

Date: LP Würm III "Périgord I" Chatelperronian

Fauna: *Corvus corax*

Layer: L3a

Date: LP Würm II

Fauna: *Gypaetus barbatus*

Layer: L3b

Date: LP Würm II

Fauna: *Corvus corax*

Det.: Mourer-Chauviré

Layer: F+G

Date: LP Aurignacian IV (Périgord V) 14C=29,000±850 BP (G1)

Fauna: *Corvus corax*, *Lagopus* sp.

Layer: H1–I1

Date: LP Aurignacian III (Périgord IV) 14C=28,700±250 BP (I1)

Fauna: *Corvus corax*, *Turdus iliacus*

Layer: I2–K3

Date: LP Aurignacian II+III (Périgord III), 14C I2 25,500±250 BP, J 26,750±250 BP, K2 27,500±280 BP, K3b 27,100±320 BP, K3d 28,820±1,500 BP

Fauna: *Perdix perdix*

Layer: K4–K6

Date: LP Aurignacian I+I-II+II (Périgord II) 14C K4=28,600±1,050, 31,300±300, K5/6 31,230±360, K5=31,250 BP, K6=35,000 BP

Fauna: *Aquila chrysaetos*, *Lagopus* sp.

Det.: Delpech

Stored: Institut du Quaternaire, Université de Bordeaux I and Musée de Préhistoire, Les Eyzies

FR 173 La Grand Baille (Ain)

Type: c

Source: Mourer-Chauviré 1975a

Date: LP LG Magdalenian très final

Fauna: *Cygnus fulvus*, *Lagopus lagopus*, *Lagopus mutus*, *Gallus gallus*, *Pyrhacorax pyrrhacorax*, *Pyrhacorax graculus*, *Corvus corone*

Det.: Mourer-Chauviré

Stored: Département des Sciences des la Terre, Lyon

FR 174 La Madeleine (Dordogne)

Type: c

Sources: Delpech 1975, 1983; Lambrecht 1933; Milne-Edwards 1875a,b; Mourer-Chauviré *in litt.*; Wolf 1938–41

Date: LP LG Magdalenian

Fauna: *Cygnus cygnus*, *Aegypius monachus*, *Gypaetus barbatus*, *Aquila chrysaetos*, *Falco peregrinus*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao urogallus*, *Perdix perdix*, *Grus primigenia*, *Burhinus oedicephalus*, *Nyctea scandiaca*, *Turdus viscivorus*, *Corvus corax*, *Corvus corone*, *Nucifraga caryocatactes*, *Pica pica*, *Pyrhacorax graculus*

Det.: Milne-Edwards

Layer: Supérieure

Date: LP LG Magdalenian VI

Fauna: *Lagopus mutus*, *Bubo bubo*, *Corvus monedula*

Layer: Moyenne

Date: LP LG Magdalenian V

Fauna: *Lagopus mutus*, *Corvus corax*, *Pica pica*?

Layer: Inférieure

Date: LP LG Magdalenian IV

Fauna: *Aquila chrysaetos*, *Lagopus mutus*

Layer: 2

Date: LP LG Magdalenian VI (Perigord 11)

Fauna: *Anas platyrhynchos*, *Falco tinnunculus*, *Lagopus* sp., *Nyctea scandiaca*, *Pyrhoxorax graculus*

Layer: 3

Date: LP LG Magdalenian VI (Perigord 11)

Fauna: *Lagopus* sp.

Layer: 5

Date: LP LG Magdalenian VI (Perigord 10)

Fauna: *Lagopus* sp.

Layer: 6

Date: LP LG Magdalenian VI (Perigord 9)

Fauna: *Lagopus* sp., *Nyctea scandiaca*, *Corvus corax*

Layer: 7

Date: LP LG Magdalenian VI (Perigord 7) 14C=12,640±260

Fauna: *Lagopus* sp., *Nyctea scandiaca*, *Corvus corax*

Layer: 8

Date: LP LG Magdalenian V (Perigord 7)

Fauna: *Lagopus* sp., *Nyctea scandiaca*

Layer: 9

Date: LP LG Magdalenian V (Perigord 6) 14C=12,750±240 BP

Fauna: *Anas platyrhynchos*, *Lagopus* sp., *Nyctea scandiaca*, *Corvus corax*, *Pyrhoxorax graculus*

Layer: 10

Date: LP LG Magdalenian V (Perigord V)

Fauna: *Lagopus* sp.

Layer: 10/11

Date: LP LG Magdalenian V (Perigord V)

Fauna: *Aythya fuligula*, *Lagopus* sp., *Nyctea scandiaca*

Layer: 10/12

Date: LP LG Magdalenian V (Perigord IV/V)

Fauna: *Lagopus* sp.

Layer: 11

Date: LP LG Magdalenian V (Perigord V)

Fauna: *Lagopus* sp., *Nyctea scandiaca*

Layer: 12

Date: LP LG Magdalenian V (Perigord IV)

Fauna: *Lagopus* sp.

Layer: 13

Date: LP Magdalenian V (Perigord IV) 14C=13,070±190 BP

Fauna: *Lagopus* sp., *Corvus corax*, *Pyrhoxorax graculus*

Layer: 14

Date: LP Magdalenian IV (Perigord IV) 14C=13,440±300 BP

Fauna: *Lagopus* sp., *Corvus corax*, *Pyrhoxorax graculus*

Layer: 16

Date: LP Magdalenian IV (Perigord IV)

Fauna: *Lagopus* sp.

Det.: Delpech

Stored: Institut du Quaternaire, Université de Bordeaux I

Notes: also known as Madelaine

FR 175 La Quina (Charente)

Type: c

Source: Mourer-Chauviré 1975a

Date: LP Mousterian 14C=31,100±400,34,100±700,35,250±530 BP (upper-most Mousterian)

Fauna: cf. *Falco peregrinus*, *Lagopus* cf. *mutus*, cf. *Alauda arvensis*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 176 La Roche Plate (Meuse)

Type: c

Source: Mourer-Chauviré 1975a

Layer: I

Date: LP LG Magdalenian evolue

Fauna: *Falco* cf. *rusticolus*, *Lagopus mutus*, *Lagopus* sp., *Perdix perdix*

Layer: II

Date: LP LG Magdalenian evolue

Fauna: *Lagopus mutus*

Layer: III

Date: LP LG Magdalenian evolue

Fauna: *Lagopus mutus*, *Lagopus* sp.

Layer: IV

Date: LP LG Magdalenian evolue

Fauna: *Lagopus* sp.

Layer: unstratified

Date: LP LG Magdalenian evolue

Fauna: *Anas* cf. *platyrhynchos*, *Anas crecca*, *Lagopus lagopus*, *Lagopus* sp., *Perdix perdix*, *Coturnix coturnix*, *Gallinago media*, *Asio* cf. *flammeus*, *Turdus pilaris* ?, *Turdus merula*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 177 La Trémie à Cassis (Bouches-du-Rhône)

Alt.: -20

Type: c

Source: Mourer-Chauviré 1975a

Date: MP Middle MP "Mindel-Riss"

Fauna: *Hydrobates pelagicus*, *Coturnix coturnix*, cf. *Columba livia*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 178 Lachaud (Dordogne)

Alt.: 160

Type: c

Source: Bouchud 1952a

Layer: 2

Date: LP Magdalenian Ib

Fauna: *Fringilla coelebs*

Layer: 6

Date: LP Solutrean

Fauna: *Falco* sp., *Galerida* sp.

Det.: Bouchud

FR 179 Lacombe-Tayac (Dordogne)

Type: c

Sources: Lambrecht 1933; Milne-Edwards 1875a,b

Fauna: *Aegypius monachus*, *Aquila chrysaetos*, *Falco peregrinus*, *Tetrao urogallus*, *Burhinus oedicephalus*, *Nyctea scandiaca*, *Turdus viscivorus*, *Corvus corax*, *Corvus corone*, *Pica pica*

Det.: Milne-Edwards

FR 180 Langeroch (Dordogne)

Sources: Lambrecht 1933

Date: LP

Fauna: *Lagopus lagopus* ?

Notes: also known as Longueroch

FR 181 Laroque II (Hérault)

Type: c

Sources: Vilette 1983, 1984

Layer: b

Date: LP Magdalenian moyen 14C=13,100±300

Fauna: *Falco naumanni*, *Lagopus* sp., *Tetrao tetrix*, *Columba* sp., *Otus scops*, *Turdus merula*, *Turdus viscivorus*, *Pyrrhocorax graculus*

Det.: Vilette

FR 182 Las Bufios (Ariège)

Type: c

Sources: Clot & Mourer-Chauviré 1986; Mourer-Chauviré 1975a

Date: LP MPal-UP

Fauna: *Aquila chrysaetos*, *Bubo bubo*, *Pyrrhocorax graculus*, *Corvus monedula*, *Corvus corax*

Det.: Mourer-Chauviré

Stored: Musée-Laboratoire de Malarnaud-Soulabé

FR 183 Laugerie Haute (Dordogne)

Alt.: 65

Type: c

Sources: Delpech 1975, 1983; Lambrecht 1933; Milne-Edwards 1875a,b

Layer: unstratified

Date: LP UP

Fauna: *Nyctea scandiaca*

Det.: Milne-Edwards

Layer: I''

Date: LP Magdalenian III

Fauna: *Lagopus lagopus*, *Cinclus cinclus*, *Corvus corax*

Layer: I'

Date: LP Magdalenian I

Fauna: *Montifringilla nivalis*

Layer: F

Date: LP Protomagdalenian

Fauna: *Haliaeetus albicilla*, *Lagopus mutus*, *Pluvialis* sp., *Bubo bubo*, *Pyrhcorax graculus*

Layer: B

Date: LP Perigordien III

Fauna: *Aegypius monachus*, *Pyrhcorax graculus*

FR 184 Laugerie Haute Est (Dordogne)

Alt.: 65

Type: c

Sources: Delpech 1975; Mourer-Chauviré 1975a

Layer: 2-20

Date: LP Magdalenian 0-III 14C=13,970-18,260 BP (Layers 2, 6, 10, 18-20, 2-3 (Magdalenian III)=13,970±480, 4-8 (Magdalenian II)=17,040±440, 18-20 (Magdalenian 0)=18,260±360 BP)

Fauna: *Lagopus* sp., *Pyrhcorax graculus*, *Corvus corax*

Layer: 9-17

Date: LP Magdalenian I (Perigord II) layer 8=17,040±440, layers 18-20=18,260±360 BP

Fauna: *Lagopus* sp.

Layer: 18-20

Date: LP Magdalenian 0 (Perigord I) 14C=18,260±360 BP

Fauna: *Corvus corax*

Layer: 34,36,38

Date: LP Perigordien VI et final 14C=21,980±250 (layer 36)

Fauna: *Falco* cf. *tinnunculus*, *Pluvialis squatarola*, *Asio otus*, *Strix aluco*, *Motacilla alba*, *Turdus pilaris*, *Sturnus vulgaris*, *Pyrhcorax pyrhorcorax*, *Pyrhcorax graculus*, *Corvus corax*

Det.: Delpech; Mourer-Chauviré

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 185 Laugerie Haute Ouest (Dordogne)

Alt.: 65

Type: c

Sources: Delpech 1975, 1983; Mourer-Chauviré 1975a

Layer: 7

Date: LP Solutrean sup. "Interstade Würm III/IV" 14C Layer 5 = $19,740 \pm 200$ BP,
Layer 12 = $20,160 \pm 100$ BP

Fauna: *Larus argentatus*

Det.: Delpech

Layer: 12b

Date: LP Solutrean inferieur 14C Layer 12a = $20,160 \pm 100$ BP, 12d = $20,750 \pm 150$ BP

Fauna: *Aquila chrysaetos*

Det.: Mourer-Chauviré

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 186 La Passagère (Isère)

Type: c

Source: Bouchud 1956

Date: LP LG Romanello-Azilian

Fauna: *Lagopus mutus*, *Hirundo rupestris*, *Hirundo rustica*, *Prunella collaris*

Det.: Bouchud

Stored: Laboratoire de Géologie de l'Université de Grenoble/Musée d'Histoire Naturelle, Grenoble ?

FR 187 Le Vallonnet (Alpes-Maritimes)

Alt.: 110

Type: c

Source: Mourer-Chauviré 1975a

Date: EP "Günz ?" 0,7-1,3 MA BP ?

Fauna: *Aquila* cf. *rapax*, cf. *Turdus iliacus*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 188 Les Balmes de Villereversure (Ain)

Alt.: 320 Type: c

Sources: Mourer-Chauviré 1975a

Date: LP

Fauna: *Aquila chrysaetos*, *Columba livia*, cf. *Galerida cristata*, *Coccothraustes coccothraustes*, *Pyrrhocorax graculus*, *Corvus corax*

Det.: Chantre; Mourer-Chauviré

Stored: Musée d'Histoire Naturelle de Lyon

FR 189 Les Valerots (Côte-d'Or)

Type: c

Sources: Chaline et al. 1985; Mourer-Chauviré 1975a, 1980

Layer: 2 inf

Date: EP "Günz?", "Villafranchien sup." MNQ 20

Fauna: *Falco tinnunculus atavus*, *Lagopus lagopus*, cf. *Alauda arvensis*, cf. *Turdus viscivorus*, *Corvus* cf. *antecorax*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

Notes: also known as L'aven des Valerots

FR 190 Lyon (Rhône)

Source: Lambrecht 1933

Fauna: *Nyctea scandiaca*

FR 191 L'Aven des Planes (Vaucluse)

Type: c

Source: Aujard-Catot et al. 1979

Layer: c

Date: LP "Late Würm"

Fauna: *Buteo buteo*, *Accipiter nisus*, *Circus macrourus*, *Tetrao urogallus*, *Lagopus* cf. *mutus*, *Perdix perdix*, *Coturnix coturnix*, *Columba palumbus*, *Pyrrhocorax graculus*, *Corvus corone*

Det.: Mourer-Chauviré

Stored: Musée Requien, Avignon

FR 192 L'Esquicho-Grapaou (Gard)

Type: c

Source: Bazile 1983

Date: LP Aurignacian 0 14C=31,850±1700 BP

Fauna: *Falco columbarius*, *Perdix perdix*

FR 193 Malarnaud (Ariège)

Alt.: 450

Type: c

Sources: Clot & Mourer-Chauviré 1986; Mourer-Chauviré 1975a

Date: LP Early Würm (Würm ancien)

Fauna: *Aquila chrysaetos*, *Buteo lagopus*, *Falco peregrinus*, *Falco subbuteo*, *Nyctea scandiaca*, *Pyrrhocorax graculus*

Det.: Mourer-Chauviré

Stored: Musée de Bordeaux and Musée d'Histoire Naturelle de Paris

Notes: also known as Grotte de Malarnaud

FR 194 Maldidier (Dordogne)

Alt.: 155

Type: c

Sources: Delpech 1975, 1983

Layer: 4a

Date: LP Aurignacian (Perigord IVa-b)

Fauna: *Pyrrhocorax graculus*

Layer: 6

Date: LP Perigord IIIB

Fauna: *Pyrrhocorax graculus*

Det.: Delpech

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 195 Margine cave (Corse)

Type: c

Sources: Lambrecht 1933; Newton 1922a

Fauna: *Pyrhocorax pyrrhocorax*, *Columba* sp.

Det.: Newton

Stored: British Museum (Natural History) or Musée d'Histoire Naturelle de Bâle ?

Notes: also known as Grotta delle Margine

FR 196 Mas Rambault (Hérault)

Type: c

Sources: Mourer-Chauviré 1975a, 1980

Date: E ? "Günz ?", "Villafranchien superieur" MNQ 19

Fauna: *Anser* cf. *erythropus*, cf. *Anas crecca*, *Falco tinnunculus atavus*, *Alectoris* sp., *Perdix palaeoperdix*, *Otis* sp., *Columba* cf. *livia*, *Athene noctua lunellensis*, *Melanocorypha* cf. *calandra*, *Eremophila* cf. *alpestris*, *Anthus* cf. *campestris*, *Turdus* cf. *merula*, cf. *Ficedula hypoleuca*, cf. *Carduelis chloris*, cf. *Carduelis spinus*, *Petronia* cf. *petronia*, *Corvus* cf. *antecorax*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 197 Mas de Caves à Lunel-Viel (Hérault)

Type: c

Sources: Lambrecht 1933; Milne-Edwards 1867–71, 1875a,b; Mourer-Chauviré 1975a; Paris 1912; Wolf 1938–41

Date: MP

Fauna: *Ciconia ciconia*, cf. *Anser anser*, cf. *Cygnus olor*, *Asio flammeus*

Det.: Serres; Milne-Edwards; Mourer-Chauviré

Stored: Département de la Sciences de la Terre, Lyon

Notes: Lambrecht also mentions *Columba* sp.

Layer: Grotte IV

Date: MP Middle MP "Mindel-Riss" (?)

Fauna: *Anas platyrhynchos*, *Aquila chrysaetos* cf. *bonifaci*, *Bubo bubo*

Det.: Mourer-Chauviré

Layer: 1

Date: MP Middle MP "Mindel-Riss" MNQ 23

Fauna: *Falco naumanni*, *Alectoris graeca mediterranea*, *Alectoris barbara*, *Columba livia occitanica*, *Asio flammeus* ?, *Athene noctua lunellensis*, *Motacilla alba*, *Turdus pilaris*, *Turdus merula*, *Turdus iliacus*, *Coccothraustes coccothraustes*, *Garrulus glandarius*, *Pica pica major*

Layer: 2

Date: MP Middle MP "Mindel-Riss" MNQ 23

Fauna: *Alectoris graeca mediterranea*, *Alectoris barbara*, *Perdix palaeoperdix*, *Athene noctua lunellensis*, *Turdus merula*, *Garrulus glandarius*

Layer: 3

Date: MP Middle MP "Mindel-Riss" MNQ 23

Fauna: *Hieraaetus fasciatus*, *Alectoris graeca mediterranea*, *Alectoris barbara*, *Phoenicurus phoenicurus*, *Turdus pilaris*, *Turdus merula*, *Garrulus glandarius*, *Pica pica major*, *Corvus monedula*, *Corvus corone*

Layer: 4

Date: MP Middle MP "Mindel-Riss" MNQ 23

Fauna: *Alectoris graeca mediterranea*, *Asio otus*, *Motacilla alba*, *Phoenicurus phoenicurus*, *Turdus merula*, *Turdus viscivorus*, *Garrulus glandarius*, *Pica pica major*, *Corvus monedula*, *Corvus corone*, *Corvus antecorax*

Layer: 5

Date: MP Middle MP "Mindel-Riss" MNQ 23

Fauna: *Alectoris graeca mediterranea*, *Alectoris barbara*, *Porzana porzana*, *Tetrax tetrax*, *Athene noctua lunellensis*, *Dendrocygus major*, *Turdus pilaris*, *Turdus merula*, *Garrulus glandarius*, *Pica pica major*, *Corvus corone*

Layer: 6

Date: MP Middle MP "Mindel-Riss" MNQ 23

Fauna: *Ciconia ciconia*, *Alectoris graeca mediterranea*, *Alectoris barbara*, *Perdix palaeoperdix*, *Vanellus vanellus*, *Scolopax rusticola*, *Columba palumbus*, *Lullula arborea*, *Turdus merula*, *Turdus viscivorus*, *Sturnus vulgaris*, *Garrulus glandarius*, *Pica pica major*, *Corvus monedula*, *Corvus antecorax*

Layer: 7

Date: MP Middle MP "Mindel-Riss" MNQ 23

Fauna: *Accipiter gentilis* cf. *brevidactylus*, *Alectoris graeca mediterranea*, *Alectoris barbara*, *Perdix palaeoperdix*, *Scolopax rusticola*, *Turdus merula*, *Garrulus glandarius*, *Corvus monedula*, *Corvus corone*, *Corvus pliocaenus jánossyi*

Layer: 8

Date: MP Middle MP "Mindel-Riss" MNQ 23

Fauna: *Alectoris graeca mediterranea*

Layer: 9

Date: MP Middle MP "Mindel-Riss" MNQ 23

Fauna: *Alectoris graeca mediterranea*, *Alectoris barbara*, *Perdix palaeoperdix*, *Columba livia occitanica*, *Columba palumbus*, *Corvus corone*

Layer: 10

Date: MP Middle MP "Mindel-Riss" MNQ 23

Fauna: *Alectoris graeca mediterranea*, *Alectoris barbara*, *Perdix palaeoperdix*, *Strix aluco*, *Turdus merula*, *Corvus corone*

Layer: 11

Date: MP Middle MP "Mindel-Riss" MNQ 23

Fauna: *Alectoris graeca mediterranea*, *Alectoris barbara*, *Scolopax rusticola*, *Athene noctua lunellensis*, *Turdus merula*

Layer: unstratified

Date: MP Middle MP "Mindel-Riss" MNQ 23

Fauna: *Accipiter gentilis breviodactylus*, *Alectoris graeca mediterranea*, *Alectoris barbara*,
Turdus merula

Det.: Mourer-Chauviré

Layer: unstratified

Date: MP

Fauna: *Athene noctua*

Det.: Gervais

Stored: Département des Sciences de la Terre, Lyon

Notes: also known as Lunel-Viel, Lunel-Vieil, Mas Gauthier and Grotte de la
 Tour Farges

FR 198 Mas d'Azil (Ariège)

Alt.: 326

Type: c

Sources: Bahn 1983; Clot & Mourer-Chauviré 1986; Vilette 1983

Date: LP Middle Magdalenian 14C = $13,200 \pm 110$, $13,400 \pm 1000$ BP

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Aythya ferina*, *Aegypius monachus*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Larus* cf. *canus*, *Columba oenas*, *Columba* sp., *Nyctea scandiaca*, *Bubo bubo*, *Lanius* cf. *excubitor*, *Turdus* cf. *viscivorus*, *Montifringilla nivalis*, *Sturnus vulgaris*, *Pyrhocorax graculus*, *Corvus corax*

Det.: Vilette

Notes: Right bank gallery

FR 199 Miallet (Gard)

Sources: Lambrecht 1933; Milne-Edwards 1867–71, 1875a,b

Fauna: *Perdix perdix*

Det.: Serres

Notes: also known as Mialet, Mallet and Grotte de Fort; Milne-Edwards (1875a,b) thought it likely that the remains from this site were actually *Lagopus*

FR 200 Montmorency (Val d'Oise)

Sources: Lambrecht 1933; Milne-Edwards 1867–71, 1875a,b; Paris 1912 (Giebel 1847)

Date: LP ?

Fauna: *Coturnix coturnix*, *Rallus* sp., *Crex crex*, *Alauda arvensis*, *Galerida cristata*

Det.: Milne-Edwards

Notes: "brèches de vallée de Montmorency"; *Alauda arvensis* is probably same bird as *Galerida cristata*; also the records of *Rallus* sp. and *Crex crex* probably refer to the same find

FR 201 Montmorillon (Vienne)

Type: c

Sources: Delpech 1975, 1983

Date: LP LG Magdalenian sup.

Fauna: *Lagopus* sp., *Nyctea scandiaca*, *Otus* sp.

Det.: Delpech

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 202 Montoussé 3 (Hautes-Pyrénées)

Alt.: 608

Type: c

Sources: Clote et al. 1976; Clot & Mourer-Chauviré 1986; Mourer-Chauviré 1980b

Date: MP "Late Mindel" MNQ 20-22

Fauna: *Buteo buteo*, *Buteo rufinus*, *Tetrao* cf. *tetrrix*, *Tetrao* cf. *urogallus*, *Bonasa praebonasia*, *Coturnix coturnix*, *Turdus* cf. *pilaris*, *Turdus* cf. *merula*, *Turdus* cf. *iliacus*, cf. *Fringilla coelebs*, *Pyrhocorax graculus* cf. *vetus*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 203 Montoussé 4 (Hautes-Pyrénées)

Alt.: 608

Type: c

Source: Clote et al. 1976

Date: MP "Mindel"

Fauna: *Perdix palaeoperdix*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 204 Montoussé 5 (Hautes-Pyrénées)

Alt.: 648

Type: c

Sources: Clote et al. 1976; Clot & Mourer-Chauviré 1986; Mourer-Chauviré 1980b

Date: LPI "phase final de Villafranchien moyen" MN 18

Fauna: *Palaeocryptonyx* sp., cf. *Dendrocopus major*, *Oenanthe* sp., *Turdus* cf. *merula*, *Turdus* cf. *viscivorus*, *Ficedula* sp., *Corvus* cf. *monedula*, *Corvus pliocaenus*, cf. *Garrulus glandarius*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 205 Montpellier (Hérault)

Source: Lambrecht 1933

Fauna: *Cygnus* sp.

FR 206 Morin (Gironde)

Type: c

Sources: Delpech 1975, 1983; Mourer-Chauviré 1975a

Layer: AI-II

Date: LP LG Magdalenian VI

Fauna: *Branta leucopsis*, *Anas platyrhynchos*, *Lagopus lagopus*, *Lagopus mutus*, *Nyctea scandiaca* cf. *gallica*

Det.: Mourer-Chauviré

Layer: AI-II

Date: LP LG Magdalenian VI

Fauna: *Branta leucopsis*, *Anas platyrhynchos*, *Anas* sp., *Aquila chrysaetos*, *Gyps fulvus*,
Lagopus sp., *Lagopus lagopus*, *Nyctea scandiaca*, *Turdus iliacus*

Det.: Delpech

Layer: AIII

Date: LP LG Magdalenian VI

Fauna: *Anas* sp., *Buteo* sp., *Aquila chrysaetos*, *Lagopus lagopus*, *Lagopus* sp., *Grus grus*,
Nyctea scandiaca cf. *gallica*, *Hirundo* sp., *Turdus viscivorus*, *Turdus merula*, *Coc-
cothraustes coccothraustes*

Det.: Mourer-Chauviré

Layer: AIV

Date: LP LG Magdalenian VI

Fauna: *Anas platyrhynchos*, *Buteo rufinus*, *Aquila chrysaetos*, *Lagopus* sp., *Columba
livia*, *Columba* sp., *Nyctea scandiaca*, *Turdus iliacus*

Det.: Delpech

Layer: AIV

Date: LP LG Magdalenian VI

Fauna: *Anas platyrhynchos*, *Aquila chrysaetos*, *Buteo rufinus*, *Columba livia*, *Nyctea
scandiaca* cf. *gallica*

Det.: Mourer-Chauviré

Layer: A indé.

Date: LP LG Magdalenian VI

Fauna: *Nyctea scandiaca*

Det.: Delpech

Layer: BI

Date: LP LG Magdalenian V

Fauna: *Anas penelope*, *Anas* sp., *Anas platyrhynchos*, *Lagopus* sp., *Nyctea scandiaca*

Det.: Delpech

Layer: BII

Date: LP LG Magdalenian V

Fauna: *Grus primigenia*, *Nyctea scandiaca*

Det.: Delpech

Layer: B indé.

Date: LP LG Magdalenian V

Fauna: *Anas platyrhynchos*, *Nyctea scandiaca*

Det.: Delpech

Layer: unstratified

Date: LP LG Magdalenian V-VI

Fauna: *Aquila chrysaetos*, *Nyctea scandiaca*

Det.: Delpech

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 207 Néron (Ardèche)

Type: c

Source: Musil 1980b

Date: LP Aurignacian-Mousterian

Fauna: *Tetrao tetrix*, *Lagopus* sp.

Det.: Koby?

Stored: Musée des Antiquités Nationales, St-Germain-en-Laye (Yvelines) ?

FR 208 Nerthe (Bouches du Rhône)

Sources: Lambrecht 1933; Milne-Edwards 1875a,b

Fauna: *Pyrhcorax graculus*

Det.: Milne-Edwards

Notes: also known as Northe and La Northe

FR 209 Neschers (Puy-de-Dôme)

Sources: Lambrecht 1933; Lydekker 1891a; Paris 1912

Date: LP ?

Fauna: *Columba livia*

Stored: British Museum (Natural History)

Det.: Lydekker

FR 210 Orciers (Haute Loire)

Type: c

Source: Bouchud & Bouchud 1953b

Date: LP LG Magdalenian

Fauna: *Falco tinnunculus*, *Falco subbuteo*, *Lagopus mutus*, *Gallinago media*, *Anthus trivialis*, *Pinicola enucleator*

Det.: Bouchud

FR 211 Orgnac 3 (Ardèche)

Type: c

Source: Mourer-Chauviré 1975a

Layer: d

Date: MP Riss MNQ 24

Fauna: *Perdix palaeoperdix*, *Picus viridis*

Layer: e

Date: MP Riss MNQ 24

Fauna: *Perdix palaeoperdix*

Layer: f

Date: MP Riss MNQ 24

Fauna: *Perdix palaeoperdix*, *Coturnix coturnix*, *Columba livia*, *Galerida cristata*, *Turdus merula*, *Turdus viscivorus*, *Garrulus glandarius*, *Pyrhcorax pyrhcorax*, *Corvus antecorax*

Layer: g

Date: MP Riss MNQ 24

Fauna: *Falco naumanni*, *Perdix palaeoperdix*, *Columba livia*, *Athene noctua lunellensis*, *Strix aluco*, *Turdus merula*, *Turdus viscivorus*, *Turdus iliacus*, *Acrocephalus arundinaceus* ?, *Pica pica*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus* cf. *vetus* ?

Layer: h sup.

Date: MP Riss MNQ 24

Fauna: *Tetrao tetrix*, *Perdix palaeoperdix*, *Pluvialis squatarola*, *Columba livia*, *Asio flammeus*, *Otus scops*, *Athene noctua lunellensis*, *Strix aluco*, *Coracias garrulus*, *Dendrocopos major*, *Galerida cristata*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Garrulus glandarius*, *Pica pica*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus* cf. *vetus*?, *Corvus monedula*, *Corvus antecorax*, *Coccothraustes coccothraustes*, *Pyrhula pyrhula*

Layer: h inf.

Date: MP Mindel/Riss MNQ 23

Fauna: *Anas platyrhynchos*, *Gypaetus barbatus*?, *Falco naumanni*, *Falco tinnunculus atavus*, *Lagopus* sp., *Alectoris graeca mediterranea*, *Alectoris barbara*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Crex crex*, *Porzana* sp., *Columba livia*, *Cuculus canorus*, *Otus scops*, *Athene noctua lunellensis*, *Strix aluco*, *Asio flammeus*, *Caprimulgus europaeus*, *Apus melba*, *Coracias garrulus*, *Upupa epops*, *Picus viridis*, *Dendrocopos major*, *Jynx torquilla*, *Galerida cristata*, *Motacilla alba*, *Saxicola rubetra*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Acrocephalus arundinaceus*?, *Sylvia melanocephala*?, *Ficedula hypoleuca*, *Garrulus glandarius*, *Pica pica*, *Pyrhcorax pyrhcorax*, *Corvus monedula*, *Corvus corone*, *Corvus antecorax*, *Coccothraustes coccothraustes*, *Carduelis chloris*, *Serinus citrinella*, *Pyrhula pyrhula*

Layer: i

Date: MP Mindel/Riss MNQ 23

Fauna: *Anas platyrhynchos*, *Aythya nyroca*, *Aythya marila*, *Accipiter nisus*, *Falco naumanni*, *Falco tinnunculus atavus*, *Lagopus* sp., *Tetrao tetrix*, *Tetrao urogallus*, *Alectoris graeca mediterranea*, *Alectoris barbara*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Crex crex*, *Pluvialis squatarola*, *Scolopax rusticola*, *Tringa* cf. *stagnatilis*, *Columba livia*, *Columba palumbus*, *Cuculus canorus*, *Nyctea scandiaca*, *Asio flammeus*, *Otus scops*, *Aegolius funereus*, *Athene noctua lunellensis*, *Strix aluco*, *Caprimulgus europaeus*, *Apus melba*, *Coracias garrulus*, *Upupa epops*, *Picus viridis*, *Dendrocopos major*, *Dendrocopos medius*, *Jynx torquilla*, *Galerida cristata*, *Lullula arborea*, *Alauda arvensis*, *Melanocorypha calandra*, *Hirundo rupestris*, *Motacilla alba*, *Bombicilla garrulus*, *Troglodytes troglodytes*, *Saxicola rubetra*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Acrocephalus arundinaceus*?, *Sylvia nisoria*, *Sylvia atricapilla*, *Sylvia melanocephala*, *Ficedula hypoleuca*, *Parus cristatus*, *Garrulus glandarius*, *Pica pica*, *Corvus corone*, *Corvus antecorax*, *Pyrhula pyrhula*, *Coccothraustes coccothraustes*, *Serinus citrinella*, *Emberiza citrinella*?, *Emberiza hortulana*?

Layer: j

Date: MP Mindel/Riss MNQ 23

Fauna: *Anas crecca*, *Falco naumanni*, *Falco tinnunculus atavus*, *Tetrao tetrix*, *Alectoris graeca mediterranea*, *Alectoris barbara*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Scolopax rusticola*, *Columba livia*, *Cuculus canorus*, *Tyto alba*, *Otus scops*, *Aegolius funereus*, *Athene noctua lunellensis*, *Strix aluco*, *Caprimulgus europaeus*, *Picus viridis*, *Dendrocopos major*, *Dendrocopos minor*, *Galerida cristata*, *Lullula arborea*, *Alauda arvensis*, *Hirundo rupestris*, *Saxicola rubetra*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Acrocephalus arundinaceus*?, *Sylvia nisoria*, *Sylvia atricapilla*, *Garrulus glandarius*, *Pica pica*, *Corvus monedula*, *Corvus antecorax*, *Pyrhula pyrhula*, *Coccothraustes coccothraustes*

Layer: j

Date: MP Mindel/Riss MNQ 23

Fauna: *Alectoris graeca*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Columba livia*, *Cuculus canorus*, *Strix aluco*, *Dendrocopos major*, *Jynx torquilla*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Garrulus glandarius*, *Corvus antecorax*

Det.: Mourer-Chauviré

Stored: Musée de Préhistoire d'Ornac

FR 212 Padirac (Lot)

Type: c

Source: Philippe 1984

Date: MP "Late Riss"

Fauna: *Columba livia*

Det.: Mourer-Chauviré

Stored: Musée d'Histoire Naturelle de Lyon

FR 213 Pair-non-Pair (Gironde)

Type: c

Source: Mourer-Chauviré 1975a

Date: LP Aurignacian-Solutreen?

Fauna: *Anser anser*, *Branta leucopsis*, *Anas strepera*, *Mergus merganser*, *Aquila chrysaetos*, *Buteo rufinus*, *Accipiter gentilis*, *Falco rusticolus*, *Pluvialis squatarola*, *Charadrius morinellus*, *Larus hyperboreus*, *Corvus monedula*, *Corvus corax*

Det.: Mourer-Chauviré

Stored: Musée de Bordeaux

FR 214 Pechde l'Ajasse (Lot)

Type: c

Source: Philippe et al. 1980

Date: LP 14C=16,210+1,280–1510 BP

Fauna: *Pyrhocorax graculus*

Det.: Mourer-Chauviré

Stored: Musée d'Histoire Naturelle de Lyon

FR 215 Pech de l'Azé I (Dordogne)

Alt.: 130

Type: c

Sources: Bordes 1955; Mourer-Chauviré 1975a

Layer: 4

Date: LP MTA Mousterian IS 3

Fauna: *Aquila chrysaetos*, *Falco tinnunculus*, *Perdix perdix*, *Pyrhocorax graculus*

Det.: Mourer-Chauviré

Layer: ?

Date: LP Mousterian (MAT); probably IS 3

Fauna: *Anser brachyrhynchus*, *Aquila* sp., *Falco subbuteo*, *Falco naumanni*, *Falco tinnunculus*, *Tetrao tetrix*, *Perdix perdix*, *Coturnix coturnix*, *Rallus aquaticus*,

Alauda cf. *arvensis*, *Calandrella* cf. *brachydactyla*, *Anthus* cf. *spinoletta*, *Turdus* sp., *Sturnus* sp., *Pica pica*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Montifringilla nivalis*

Det.: Bouchud

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 216 Pech de l'Azé II (Dordogne)

Alt.: 130

Type: c

Source: Mourer-Chauviré 1975a

Layer: 2G

Date: LP Typical Mousterian "Würm I" ESR=54–59 KA BP (IS 4)

Fauna: *Otus scops*, *Hirundo daurica*, *Turdus viscivorus*

Layer: 3

Date: LP Typical Mousterian "Würm I" ESR=60–72 KA BP (IS 4–5a)

Fauna: *Perdix perdix*, *Alauda arvensis*, *Hirundo daurica*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Coccothraustes coccothraustes*, *Pyrrhonorax graculus*

Notes: Age also reported as 103 ± 27 KA BP

Layer: 4A

Date: LP Typical Mousterian "Würm I" ESR=71–87 KA BP (IS 5a)

Fauna: *Falco tinnunculus*, *Perdix perdix*, *Alauda arvensis*, *Cinclus cinclus*

Layer: 4B

Date: LP Typical Mousterian "Würm I" ESR=71–87 KA BP (IS 5a)

Fauna: *Accipiter nisus*, *Tetrao tetrix*, *Perdix perdix*, *Calidris* cf. *canutus*, *Columba livia*, *Alauda arvensis*, *Coccothraustes coccothraustes*, *Pyrrhonorax graculus*

Layer: 4C

Date: LP Typical Mousterian "Würm I" ESR=71–87 KA BP (IS 5a)

Fauna: *Tetrao tetrix*, *Strix aluco*, *Corvus corax*

Layer: 4E

Date: LP Typical Mousterian "Würm I" ESR=71–87 KA BP

Fauna: *Perdix perdix*

Layer: 6

Date: MP Acheulean "Riss II" ESR=130–162 KA BP (IS 6)

Fauna: *Perdix* cf. *palaeoperdix*, *Turdus viscivorus*, *Corvus* cf. *antecorax*

Layer: 7

Date: MP Acheulean "Riss II" ESR=130–162 KA BP (IS 6)

Fauna: *Haliaeetus albicilla*, *Perdix* cf. *palaeoperdix*, *Athene noctua*

Layer: 8

Date: MP Acheulean "Riss I" ESR=130–162 KA BP (IS 6)

Fauna: *Athene noctua*

Layer: 6–8

Date: MP Acheulean "Riss I-II" ESR=130–162 KA BP (IS 6)

Fauna: cf. *Tetrao urogallus*

Det.: Mourer-Chauviré

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 217 Petit Puymoyen (Charente)

Type: c

Source: Mourer-Chauviré 1975a

Date: LP Quina Mousterian

Fauna: *Anas platyrhynchos*, *Aegypius monachus*, *Alectoris graeca*, *Perdix perdix*, *Gallus gallus*, *Delichon urbica*, *Pica pica*, *Corvus monedula*

Det.: Mourer-Chauviré Stored: Département des Sciences de la Terre, Lyon

FR 218 Phosphorites de Quercy (Tarn, Tarn-et-Garonne, Lot and Aveyron)

Type: o

Sources: Gaillard 1908; Lambrecht 1933

Fauna: *Galerida cristata*, *Alauda arvensis*, *Hirundo rustica*, *Pyrhonorax graculus*

Det.: Gaillard

Stored: Musée National d'Histoire Naturelle, Institut de Paléontologie, Paris

Notes: exact age and provenience unknown

FR 219 Piage (Lot)

Type: c

Source: Mourer-Chauviré 1981d

Layer: c-E

Date: LP Solutrean-Magdalenian

Fauna: *Falco tinnunculus*, *Lagopus mutus*, *Lagopus* sp., *Charadrius morinellus* ?, *Calidris alpina* ?, *Nyctea scandiaca*, *Galerida cristata*, *Hirundo rupestris*, *Turdus pilaris*, *Pyrhonorax graculus*, *Corvus corax*

Layer: F

Date: LP Aurignacian

Fauna: *Pyrhonorax graculus*

Layer: F1

Date: LP Châtelperronian

Fauna: *Perdix perdix*, *Galerida cristata*

Layer: K

Date: LP Aurignacian

Fauna: *Montifringilla nivalis* ?, *Pyrhonorax graculus*, *Corvus corax*

Det.: Mourer-Chauviré

FR 220 Pié Lombard (Alpes-Maritimes)

Alt.: 250

Type: c

Sources: Mourer-Chauviré 1975a

Date: LP "Würm I" Typical Mousterian TL=70,000±7700 BP (layer 4)

Fauna: *Anas platyrhynchos*, *Aquila chrysaetos*, *Alectoris graeca*, *Perdix perdix*, *Columba livia*, *Columba palumbus*, *Hirundo rupestris*, *Anthus* cf. *campestris*, *Turdus* cf. *viscivorus*, *Pyrhonorax pyrrhonorax*, *Pyrhonorax graculus*, *Corvus* cf. *corone*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

Notes: Also TL age=108,4±9,8 KA BP

FR 221 Pont d'Ambon (Dordogne)

Alt.: 85

Type: c

Sources: Delpech 1975, 1983

Layer: 2

Date: LP LG/Hol. Azilian 14C=9,640±120 BP (Preboreal)

Fauna: *Aythya fuligula*, *Falco tinnunculus*, *Perdix perdix*, *Coturnix coturnix*, *Turdus* sp.

Layer: 3

Date: LP LG Azilian 14C=9,990±250, 10,350±190 BP (Dryas 3)

Fauna: *Anas platyrhynchos*, *Aquila chrysaetos*, *Perdix perdix*, *Alectoris rufa*, *Coturnix coturnix*, *Crex crex*, *Numenius* sp., *Otus scops*, *Alauda arvensis*, *Corvus monedula*, *Pyrrhula pyrrhula*

Layer: 3a

Date: LP LG Azilian 14C=9,830±180 BP (Alleröd)

Fauna: *Melanitta fusca*, *Aquila chrysaetos*, *Perdix perdix*, *Coturnix coturnix*, *Porzana porzana*, *Corvus monedula*

Layer: 4

Date: LPLG Azilian/Magdalenian 14C=12,840±220 (base) BP (Bölling-Dryas 2)

Fauna: *Perdix perdix*, *Coturnix coturnix*

Det.: Delpech

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 222 Poron des Cuèches (Côte-d'Or)

Alt.: 407

Type: c

Sources: Bouchud & Bouchud 1957b; Grimm 1972

Layer: VII

Date: LP LG Sauveterrian ?

Fauna: *Lagopus mutus*, *Lagopus lagopus*, *Tetrao tetrix*, *Charadrius morinellus*, *Turdus merula*?

Notes: Layer VII slightly older than Sauveterrien

Layer: VIII

Date: LP LG Magdalenian

Fauna: *Lagopus mutus*, *Lagopus lagopus*, *Bonasa bonasia*

Det.: Bouchud

Stored: Université de Dijon ?

FR 223 Puits de Peyreignes (Hautes-Pyrénées)

Alt.: 508 Type: c

Source: Clot & Mourer-Chauviré 1986

Date: LP Würm IV 14C=14470±230 BP

Fauna: *Pyrrhonorax graculus*

Det.: Mourer-Chauviré

Stored: Musée de Bagnères-de-Bigorre ?

FR 224 Ramandils (Aude)

Alt.: 2

Type: o

Sources: Clot & Mourer-Chauviré 1986; Mourer-Chauviré 1975a; Musil 1980b

Date: LP Mousterian, Würm II

Fauna: *Cygnus cygnus*, *Aquila* cf. *chrysaetos*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 225 Repaire de Voutenay (Yonne)

Type: c

Sources: Parat 1908; Wolf 1938–41

Date: LP LG Magdalenian

Fauna: *Aquila* sp.

Notes: also known as Grotte le Repaire and la Roche-Percée

FR 226 Rhodes II (Ariège)

Type: c

Sources: Clot & Mourer-Chauviré 1986; Delpech 1975, 1983

Layer: unstratified

Date: LP LG

Fauna: *Lagopus* sp.

Layer: F7

Date: LP LG Azilian

Fauna: *Falco columbarius* ?, *Coturnix coturnix*

Layer: F6

Date: LP LG Magdalenian final/Azilian 14C=12,100±150 BP (base)

Fauna: *Falco columbarius* ?, *Lagopus* sp., *Asio* sp., *Turdus* sp.

Layer: F3

Date: LP LG Magdalenian Dryas 2 ?

Fauna: *Lagopus* sp.

Layer: F1

Date: LP LG Magdalenian End Bölling ?

Fauna: *Lagopus* sp.

Det.: Delpech

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 227 Roc de Combe (Lot)

Type: c

Sources: Delpech 1975, 1983

Layer: 1b

Date: LP Perigordien final (Perigord VIIc)

Fauna: *Circus cyaneus*, *Lagopus* sp., *Coccothraustes coccothraustes*?

Layer: 1c

Date: LP Perigordien superieur evolue (Perigord VIIb)

Fauna: *Aquila chrysaetos*, *Lagopus* sp., *Perdix perdix*, *Corvus corax*, *Pyrrhocorax graculus*, *Pyrrhula pyrrhula*?

Layer: 1 undifferentiated

Date: LP Perigord VIIb-c

Fauna: *Aquila chrysaetos*, *Gyps fulvus*, *Lagopus* sp., *Gallinago* sp., *Corvus corax*, *Pyrrhocorax graculus*

Layer: 3

Date: LP Perigordien à Noailles (Perigord VI)

Fauna: *Alle alle*, Passeriformes

Layer: 4

Date: LP Perigordien à gravettes (Perigord V)

Fauna: *Lagopus* sp., *Perdix perdix*, *Charadrius* sp., *Alauda arvensis*, *Corvus corax*, *Pyrrhocorax graculus*, *Fringilla montifringilla*

Layer: 5

Date: LP Aurignacian évolué (Perigord IV)

Fauna: *Perdix perdix*, *Crex crex*, *Alauda arvensis*, *Corvus corax*, *Pyrrhocorax graculus*

Layer: 6

Date: LP Aurignacian II (Perigord IIc+IIla)

Fauna: *Falco tinnunculus*, *Lagopus* sp., *Perdix perdix*, *Coturnix coturnix*, *Pluvialis apricaria*, *Tringa totanus*, *Tringa* spp., *Asio flammeus*, *Alauda arvensis*, *Turdus pilaris*, *Corvus corax*, *Pyrrhocorax graculus*

Layer: 6/7

Date: LP Sterile (Perigord IIb)

Fauna: *Lagopus* sp., *Perdix perdix*, *Rallus aquaticus*, *Pluvialis apricaria*, *Charadrius* sp., *Tringa* sp., *Alauda arvensis*, *Turdus viscivorus*

Layer: 7a

Date: LP Aurignacian I (Perigord IIa upper)

Fauna: *Aythya fuligula*, *Falco tinnunculus*, *Lagopus* sp., *Perdix perdix*, *Pluvialis apricaria*, *Vanellus vanellus*, *Tringa* sp., *Alauda arvensis*,

Layer: 7b

Date: LP Aurignacian I (Perigord Id top+IIa bottom)

Fauna: *Perdix perdix*, *Coccothraustes coccothraustes*

Layer: 7c

Date: LP Aurignacian I (Perigord Id bottom)

Fauna: *Perdix perdix*, *Corvus corax*

Layer: 7 undifferentiated

Date: LP Aurignacian I (Perigord Id+IIa)

Fauna: *Gyps fulvus*, *Tringa* sp., *Lagopus* sp.

Layer: 8

Date: LP Perigordien ancien (Chatelperronian) (Perigord Ic)

Fauna: *Lagopus* sp., *Perdix perdix*, *Coturnix coturnix*, *Numenius phaeopus*, *Alauda arvensis*, *Turdus pilaris*, *Pyrrhocorax pyrrhocorax*, *Coccothraustes coccothraustes*?

Layer: 9

Date: LP Aurignacian (Perigord Ia top)

Fauna: *Perdix perdix*, *Coturnix coturnix*, *Alauda arvensis*, *Corvus corax*, *Corvus monedula*

Det.: Delpech

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 228 Roc de Marcamps (Gironde)

Type: c

Sources: Delpech 1975, 1983

Date: LP LG Magdalenian

Fauna: *Aquila chrysaetos*, *Lagopus* sp., *Gallus* sp., *Nyctea scandiaca*

Det.: Delpech

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 229 Rochereil (Dordogne)

Alt.: 85

Type: c

Sources: Astre 1950; JuDet.960

Date: LP LG Magdalenian

Fauna: *Aquila* sp., *Tetrao tetrix*, *Lagopus lagopus*, *Bubo bubo*, *Nyctea scandiaca*,
Prunella collaris, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*, *Corvus frugilegus*,
Garrulus glandarius

Det.: Astre

Stored: Musée d'Histoire Naturelle de Toulouse ?

FR 230 Rois (Charente)

Type: c

Source: Musil 1980b (Mouton & Joffrey 1958)

Layer: B

Date: LP "Aurignacian I"

Fauna: *Aquila chrysaetos*, *Turdus merula*, *Lagopus lagopus*

FR 231 Rond-du-Barry (Haute-Loire)

Type: c

Sources: Mourer-Chauviré 1974, 1975a, 1978

Layer: A

Date: LP ?

Fauna: *Lagopus mutus*, *Columba livia*, *Pyrrhula pyrrhula*, *Passer domesticus*

Notes: possibly Holocene ?

Layer: c

Date: LP/Hol Magdalenian final/Remanié

Fauna: *Asio flammeus*, *Hirundo daurica*, *Turdus merula*

Layer: D

Date: LP LG Magdalenian final

Fauna: *Anser anser*, *Anas crecca*, *Accipiter gentilis*, cf. *Milvus migrans*, *Lagopus* sp.,
Tetrao urogallus, *Perdix perdix*, *Coturnix coturnix*, *Scolopax rusticola*, *Columba*

livia, *Asio otus*, *Strix aluco*, *Lullula arborea*, *Motacilla alba*, *Hirundo daurica*, *Cinclus cinclus*, *Saxicola rubetra*, *Turdus merula*, *Turdus iliacus*, *Parus major*, *Sitta europaea*, *Coccothraustes coccothraustes*, *Garrulus glandarius*, *Pyrhcorax pyrhcorax primigenius*, *Pyrhcorax graculus*, *Corvus corax*

Layer: E

Date: LP LG Magdalenian final 14C=12,380–12,700 BP

Fauna: *Cygnus cygnus*, *Anser anser*, *Anas platyrhynchos*, *Anas crecca*, *Anas strepera*, *Anas clypeata*, *Falco* cf. *naumanni*, *Lagopus mutus*, *Lagopus* sp., *Perdix perdix*, *Coturnix coturnix*, *Tetrax tetrax*, cf. *Vanellus vanellus*, *Charadrius morinellus*, cf. *Actitis hypoleucos*, *Nyctea scandiaca*, *Athene noctua*, *Galerida cristata*, *Alauda arvensis*, *Motacilla alba*, *Hirundo daurica*, *Cinclus cinclus*, *Oenanthe oenanthe*, *Turdus merula*, *Turdus viscivorus*, *Pyrhcorax pyrhcorax primigenius*, *Pyrhcorax graculus*, *Corvus corax*, *Emberiza hortulana*, *Coccothraustes coccothraustes*

Layer: E 3

Date: LP

Fauna: *Anas platyrhynchos*, *Mergus merganser*, *Falco subbuteo*, *Lagopus* cf. *mutus*, *Perdix perdix*, *Coturnix coturnix*, *Charadrius morinellus*, *Hirundo daurica*, *Turdus pilaris*, *Plectrophenax nivalis* ?

Layer: F

Date: LP Magdalenian ancien

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Anas strepera*, *Alectoris graeca*, *Coturnix coturnix*, *Columba livia*, *Hirundo daurica*, *Motacilla alba*, *Saxicola rubetra*, *Turdus merula*, *Serinus citrinella*, *Garrulus glandarius*, *Pyrhcorax graculus*, *Corvus corax*

Layer: F 2

Date: LP

Fauna: *Lagopus* sp., *Perdix perdix*, *Hirundo daurica*

Det.: Mourer-Chauviré

Layer: C

Date: LP Magdalenian final/Remanié

Fauna: *Anas platyrhynchos*, *Gallus* sp., *Columba* sp.

Det.: Poulain

Stored: Musée Crozatier, Le Puy-en-Velay

FR 232 Saint Romans (Isère)

Type: c

Sources: Mourer-Chauviré 1975a

Date: LP LG Magdalenian

Fauna: *Falco tinnunculus* ?, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Scotopax rusticola*, *Gallinago media*

Det.: Gaillard; Mourer-Chauviré

Notes: Gaillards' determinations revised by Mourer-Chauviré.

Layer: Série II = Couche I

Date: LP LG Magdalenian

Fauna: *Falco* sp., *Lagopus* sp., *Tetrao tetrix*, *Tetrao urogallus*, *Rallus aquaticus*, *Larus fuscus*, *Pyrhcorax graculus*

Layer: Série III = Couche II,III,IV

Date: LP LG Magdalenian 14C=12,970±300 BP

Fauna: *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, cf. *Motacilla alba*, *Turdus iliacus*?, *Turdus viscivorus*?, *Pyrrhocorax graculus*

Layer: Série IV = Couche V-IX

Date: LP Magdalenian 14C=13,450±300 BP

Fauna: *Anas crecca*, *Falco vespertinus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Rallus aquaticus*, *Charadrius morinellus*, *Gallinago media*, *Scolopax rusticola*, *Sterna sandvicensis*, *Nyctea scandiaca*, *Pyrrhocorax graculus*, *Corvus corax*

Det.: Mourer-Chauviré

Stored: Musée d'Histoire Naturelle de Lyon

FR 233 Sainte Eulalie (Lot)

Type: c

Sources: Delpech 1975, 1983

Layer: 1

Date: LP LG Magdalenian VI 14C=10,400±300, 10,830±200 BP

Fauna: *Lagopus* sp., *Anas* sp.

Det: Delpech ?

Stored: Institut du Quaternaire, Université de Bordeaux I

FR 234 Saint-Acheul (?)

Type: o

Sources: Lambrecht 1933; Milne-Edwards 1867–71

Fauna: cf. *Anser anser*

Det.: Milne-Edwards

Notes: "Tourbières de la vallée de la Somme, Saint Acheul"; reportedly found in Pleistocene deposits, but Milne-Edwards (1867–71) considered that it probably came from Holocene peat, based on the state of preservation

FR 235 Salpêtre à Pompignan (Hérault)

Alt.: 380

Type: c

Sources: Mourer-Chauviré 1975a; Vilette et al. 1983

Layer: V

Date: LP Mousterian

Fauna: *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Coturnix coturnix*, *Charadrius* cf. *morinellus*, *Asio flammeus*, *Dendrocopos major*, *Galerida cristata*, *Turdus merula*, *Turdus viscivorus*, *Garrulus glandarius*, *Pica pica*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*, *Coccothraustes coccothraustes*, *Montifringilla nivalis*, *Emberiza citrinella*

Layer: VI

Date: LP Mousterian

Fauna: *Perdix perdix*, *Galerida cristata*, *Saxicola rubetra*, *Turdus viscivorus*, *Garrulus glandarius*, *Pica pica*, *Coccothraustes coccothraustes*, *Montifringilla nivalis*

Layer: VII

Date: LP Mousterian

Fauna: *Accipiter nisus*, *Falco columbarius*, *Falco tinnunculus*, *Tetrao tetrax*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Charadrius morinellus*, *Scolopax rusticola*, *Columba livia*, *Cuculus canorus*, *Otus scops*, *Athene noctua*, *Dendrocopos medius*, *Jynx torquilla* ?, *Galerida cristata*, *Hirundo daurica*, *Saxicola rubetra*, *Turdus merula*, *Turdus viscivorus*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Corvus corax*, *Coccothraustes coccothraustes*, *Montifringilla nivalis*, *Emberiza citrinella*

Layer: VIII

Date: LP Mousterian

Fauna: *Falco naumanni*, *Coturnix coturnix*, *Galerida cristata*, *Saxicola rubetra* ?, *Turdus viscivorus*, *Pica pica*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*

Layer: IX

Date: LP Mousterian

Fauna: *Accipiter nisus*, *Columba livia*, *Galerida cristata*, *Turdus viscivorus*, *Emberiza citrinella*, *Pyrrhonorax graculus*

Layer: X

Date: LP Mousterian

Fauna: *Columba livia*

Layer: XI

Date: LP Mousterian

Fauna: *Pyrrhonorax graculus*

Det.: Mourer-Chauviré

Layer: F1

Date: LP/Hol Dryas 3/Preboreal 14C=9,900±200 BP

Fauna: *Alectoris graeca/rufa*, *Columba* cf. *livia*, *Glaucidium passerinum*, *Merops apiaster*, *Hirundo rupestris*, *Hirundo rustica*, *Turdus merula*, *Turdus iliacus/philomela*, *Pica pica*

Layer: 1a

Date: LP/Hol Mesolithic Dryas 3/Preboreal 14C=9,900±200 BP

Fauna: *Aythya fuligula*, *Falco subbuteo*, *Falco naumanni*, *Falco tinnunculus*, *Lagopus* sp., *Alectoris graeca/rufa*, *Perdix perdix*, *Coturnix coturnix*, *Scolopax rusticola*, *Tringa* sp., *Columba* cf. *livia*, *Cuculus canorus*, *Otus scops*, *Athene noctua*, *Merops apiaster*, *Upupa epops*, *Dendrocopos medius*, *Jynx torquilla*, *Hirundo rupestris*, *Hirundo rustica*, *Lanius senator*, *Troglodytes troglodytes*, *Erithacus rubecula*, *Turdus pilaris*, *Turdus merula*, *Turdus philomelos/iliacus*, *Turdus viscivorus*, *Acrocephalus* sp., *Acrocephalus arundinaceus*, *Sylvia atricapilla*, *Phylloscopus* sp., *Ficedula hypoleuca*, *Parus cristatus*, *Parus ater*, *Pica pica*, *Nucifraga caryocatactes*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus* ?, *Fringilla coelebs*, *Coccothraustes coccothraustes*, *Passer domesticus*, *Emberiza citrinella*

Layer: 2

Date: LP UP Magdalenian?

Fauna: *Perdix perdix*, *Cinclus cinclus*, *Turdus merula*, *Turdus viscivorus*

Layer: 3

Date: LP Würm III UP 14C=28,500±1000 BP

Fauna: *Falco naumanni*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrax*, *Perdix perdix*, *Porzana parva/pusilla*, *Asio otus*, *Turdus pilaris*, *Turdus viscivorus*, *Pyrrhonorax graculus*

Layer: 7

Date: LP Würm II Mousterian

Fauna: *Coturnix coturnix*, *Dendrocopos medius*, *Turdus pilaris*, *Turdus merula*, *Pyrhcorax graculus*, *Petronia petronia*

Layer: 8

Date: LP Würm II Mousterian

Fauna: *Pyrhcorax graculus*

Det.: Vilette, Mourer-Chauviré

Stored: Centres de Recherches Archéologiques du CNRS, Sophia-Antipolis

FR 236 Salpêtrière à Remoulins (Gard)

Type: c

Sources: Mourer-Chauviré 1975a; Vilette 1981b, 1983, 1984

Layer: C 2

Date: LP Salpetrien superieur

Fauna: *Lagopus* sp., *Perdix perdix*, *Galerida cristata*, *Pyrhcorax graculus*

Layer: C 3

Date: LP Salpetrien superieur 14C=13,100±200 BP

Fauna: *Coturnix coturnix*, *Charadrius hiaticula*, *Lymnocyptes minimus*, *Asio otus*

Layer: C 4

Date: LP Salpetrien superieur 14C=15,000±1000–14,200±300 BP

Fauna: *Lagopus* sp., *Pyrhcorax graculus*

Layer: C 5

Date: LP Salpetrien ancien 14C=17,960±600 BP

Fauna: *Falco vespertinus*, *Charadrius hiaticula*, *Alauda arvensis*, *Pyrhcorax graculus*

Layer: C 6

Date: LP Salpetrien ancien 14C=18,800±300–19,530±270 BP

Fauna: *Lagopus* sp., *Charadrius hiaticula*, *Lullula arborea*

Layer: D

Date: LP Salpetrien ancien 14C=18,500±240 BP

Fauna: *Lagopus* sp., *Perdix perdix*, *Columba oenas*, *Galerida cristata*, *Turdus viscivorus*, *Pyrhcorax graculus*

Layer: "ensemble i"

Date: LP Solutrean 14C=18,700±350–20,500±500 BP

Fauna: *Lagopus lagopus*, *Lagopus* sp., *Coturnix coturnix*, *Charadrius hiaticula*, *Galerida cristata*, *Lullula arborea*, *Pyrhcorax graculus*, *Corvus corone*, *Coccothraustes coccothraustes*

Layer: 30Ab/A

Date: LP Aurignacian terminal 14C=19,600±400–20,630±770 BP

Fauna: *Anas platyrhynchos*, *Falco subbuteo*, *Lagopus* sp., cf. *Tetrao tetrix*, *Perdix perdix*, *Coturnix coturnix*, *Charadrius morinellus*, *Lymnocyptes minimus*, *Numenius arquata*, *Columba oenas*, *Galerida cristata*, *Lullula arborea*, *Cinclus cinclus*, *Loxia pytyopsittacus*, *Petronia petronia*, *Plectrophenax nivalis*

Layer: C1

Date: LP Aurignacian evolue 14C=21,250±350 BP

Fauna: *Lagopus lagopus*

Layer: E1

Date: LP Perigordien superieur 14C=22,350±350 BP

Fauna: *Lagopus lagopus*

Layer: CG5-SLC4

Date: LP Aurignacian ancien 14C=28,180±1000 BP

Fauna: *Anas platyrhynchos*, *Anas clypeata*, *Aythya fuligula*, cf. *Falco peregrinus*, *Lagopus lagopus*, *Lagopus* sp., *Perdix perdix*, *Pluvialis apricaria*, *Columba oenas*, *Columba livia*, *Asio otus*, *Galerida cristata*, *Lullula arborea*, *Hirundo rustica*, *Cinclus cinclus*, cf. *Turdus merula*, *Turdus viscivorus*, *Pyrrhonorax graculus*, *Corvus corone*

Det.: Vilette

Layer: 3

Date: LP "Würm IV"

Fauna: *Lagopus lagopus*

Layer: 4

Date: LP "Würm IV"

Fauna: *Lagopus lagopus*

Layer: 5

Date: LP Solutrean-Salpetrien inferieur (W III-W III/IV-W IV)

Fauna: *Lagopus lagopus*, *Pica pica*, *Pyrrhonorax graculus*

Det.: Mourer-Chauviré

Stored: Musée de Nîmes

Notes: also known as Grotte du Pont-du-Gard, Cave de Rémoûlins

FR 237 Savigny (Haute-Savoie)

Alt.: 750

Type: c

Sources: Jayet 1949; Musil 1980b

Layer: Gelbliche

Date: LP "Late Eem"

Fauna: *Lagopus lagopus*, *Corvus monedula*, *Coccothraustes coccothraustes*

Stored: Musée d'Histoire Naturelle, Genève ?

FR 238 Senèze (Haute-Loire)

Type: o

Sources: Lambrecht 1933; Mourer-Chauviré 1980b, 1989a, 1990, 1993; Stehlin 1923

Date: LPI/EP Early Villafranchien superieur, Lower Biharium MN 18

Fauna: *Ciconia* sp., *Anatidae* sp., *Tetrao* cf. *partium*, *Pavo bravardi*, *Alectoris* sp., *Gruidae* sp., *Bubo* sp., *Corvus hungaricus*

Det.: Stehlin; Mourer-Chauviré

Stored: Musée d'Histoire Naturelle de Bâle and Département des Sciences de la Terre, Lyon

FR 239 Solutré (Saône-et-Loire)

Alt.: 375

Type: o

Sources: Arcelin 1890; Ducrost & Lartet 1872

Date: LP

Fauna: *Anas* sp.

Notes: "foyers d'âge du renne"

Date: LP

Fauna: *Nyctea scandiaca*

Notes: "foyers d'âge du cheval"

Date: LP UP

Fauna: cf. *Anas* sp., *Buteo* sp.?

Notes: also known as Clos, Cros or Creux du Charnier; site used at least from the Perigordian to the Magdalenian (14C = 12,280–30,400 BP)

FR 240 Soulabé (Ariège)

Alt.: 450

Type: c

Sources: Clot & Mourer-Chauviré 1986; Mourer-Chauviré 1975a

Layer: Abri

Date: LP/Hol

Fauna: *Gypaetus barbatus*, *Falco tinnunculus*, *Perdix perdix*, *Coturnix coturnix*, *Gallus gallus*, *Asio flammeus*, *Hirundo rustica*, *Turdus pilaris*, *Turdus merula*, *Turdus viscivorus*, *Pyrrhonorax graculus*, *Corvus monedula*, *Montifringilla nivalis*

Layer: Galerie profonde, tranchée, C 1

Date: LP/Hol

Fauna: *Aquila chrysaetos*, *Falco naumanni*, *Alectoris graeca*, *Pyrrhonorax pyrrhonorax primigenius*, *Pyrrhonorax graculus*, *Corvus monedula*, *Montifringilla nivalis*

Layer: Galerie profonde, tranchée, C 1–C 2

Date: LP

Fauna: *Anas platyrhynchos*, *Gyps melitensis*, *Gypaetus barbatus*, *Aquila chrysaetos*, *Buteo buteo*?, *Falco subbuteo*, *Falco tinnunculus*, *Lagopus lagopus*, *Perdix perdix*, *Coturnix coturnix*, *Gallus gallus*, *Columba livia*, *Bubo bubo*, *Asio otus*, *Aegolius funereus*, *Alauda arvensis*, *Delichon urbica*, *Cinclus cinclus*, *Turdus pilaris*, *Turdus merula*, *Turdus iliacus*, *Turdus viscivorus*, *Nucifraga caryocatactes*, *Pyrrhonorax pyrrhonorax primigenius*, *Pyrrhonorax graculus*, *Corvus monedula*, *Corvus corax*, *Carpodacus erythrinus*?, *Montifringilla nivalis*

Layer: Galerie inferieure "Limon"

Date: LP Würm récent (Würm III?)

Fauna: *Gyps fulvus*, *Aquila chrysaetos*, *Falco tinnunculus*, *Perdix perdix*, *Coturnix coturnix*, *Columba livia*, *Bubo bubo*?, *Alauda arvensis*, *Hirundo rustica*, *Delichon urbica*, *Turdus pilaris*, *Turdus merula*, *Turdus viscivorus*, *Sturnus vulgaris*, *Pica pica*, *Pyrrhonorax pyrrhonorax primigenius*, *Pyrrhonorax graculus*, *Corvus monedula*, *Corvus corax*, *Montifringilla nivalis*

Layer: Galerie inferieure C 1/2

Date: LP/Hol Neolithic/Mousterian

Fauna: *Aquila chrysaetos*, *Falco tinnunculus*, *Gallus gallus*, *Charadrius hiaticula*, *Turdus pilaris*, *Turdus viscivorus*, *Montifringilla nivalis*, *Pyrrhonorax graculus*

Layer: Galerie inferieure C 2

Date: LP Mousterian

Fauna: *Gallus gallus*, *Pyrhcorax graculus*

Layer: Galerie inferieure "Ocre"

Date: LP Mousterian, Würm II

Fauna: *Aquila chrysaetos*, *Falco vespertinus*, *Falco tinnunculus*, *Perdix perdix*, *Columba livia*, *Turdus pilaris*, *Turdus merula*, *Turdus viscivorus*, *Pyrhcorax pyrrhcorax primigenius*, *Pyrhcorax graculus*, *Corvus monedula*, *Montifringilla nivalis*

Layer: Galerie inferieure "Rouge"

Date: LP Mousterian, Early Würm I (IS 5c?)

Fauna: *Anas acuta*, *Aquila chrysaetos*, *Turdus pilaris*, *Turdus viscivorus*, *Pyrhcorax graculus*, *Corvus monedula*

Layer: Galerie inferieure "Vert"

Date: LP Mousterian, Late Würm I (IS 5b?)

Fauna: *Perdix perdix*, *Pyrhcorax graculus*, *Corvus monedula*

Layer: Galerie inferieure, unstratified

Date: LP/Hol Mousterian/Neolithic

Fauna: *Gypaetus barbatus*?, *Aquila chrysaetos*, *Falco peregrinus*, *Columba livia*, *Turdus merula*, *Turdus iliacus*, *Pyrhcorax pyrrhcorax primigenius*, *Pyrhcorax graculus*

Layer: Galerie profonde, salle terminale C 1

Date: LP Mousterian

Fauna: *Mergus merganser*, *Falco vespertinus*, *Falco tinnunculus*, *Cinclus cinclus*, *Turdus viscivorus*, *Pyrhcorax pyrrhcorax primigenius*, *Pyrhcorax graculus*, *Montifringilla nivalis*

Layer: Galerie profonde, salle terminale C 1/2

Date: LP Mousterian

Fauna: *Turdus iliacus*, *Montifringilla nivalis*, *Pyrhcorax graculus*

Layer: Galerie profonde, salle terminale C 2

Date: LP Mousterian

Fauna: *Aquila chrysaetos*, *Lagopus lagopus*, *Montifringilla nivalis*, *Pyrhcorax graculus*, *Corvus monedula*

Layer: Galerie profonde, salle terminale C 2/3

Date: LP Mousterian

Fauna: *Haliaeetus albicilla*, *Falco tinnunculus*, *Columba livia*, *Columba oenas*, *Hirundo rustica*, *Delichon urbica*, *Turdus merula*, *Turdus iliacus*, *Carpodacus erythrinus*, *Montifringilla nivalis*, *Pyrhcorax pyrrhcorax primigenius*, *Pyrhcorax graculus*, *Corvus monedula*

Layer: Galerie profonde, salle terminale C 3

Date: LP Mousterian

Fauna: *Aquila chrysaetos*, *Falco naumanni*, *Falco tinnunculus*, *Columba livia*, *Columba oenas*, *Hirundo rustica*, *Turdus pilaris*, *Turdus merula*, *Turdus iliacus*, *Montifringilla nivalis*, *Sturnus vulgaris*, *Pyrhcorax pyrrhcorax primigenius*, *Pyrhcorax graculus*, *Corvus monedula*, *Corvus corax*

Layer: Galerie profonde, salle terminale, Limon jaune

Date: LP Mousterian

Fauna: *Pyrhcorax graculus*

Layer: ?

Date: LP Würm ancien Mousterian

Fauna: *Anser anser*, *Anas platyrhynchos*, *Lagopus mutus*, *Lagopus* sp., *Coturnix coturnix*, *Bubo bubo*, *Alauda arvensis*, *Pica pica*

Det.: Mourer-Chauviré

Stored: Musée-Laboratoire de Malarnaud-Soulabé

Notes: also known as Grotte de las Maretas

FR 241 Tastevin (Haute Loire)

Type: c

Source: Bouchud & Bouchud 1955c

Date: LP LG Azilian

Fauna: *Columba livia*

Det.: Bouchud

FR 242 Terra Amata (Alpes-Maritimes)

Type: c

Sources: Mourer-Chauviré 1975a

Date: MP Early MP "Mindel" TL=230±40 KA BP poss. ca. 400 KA BP ?

Fauna: cf. *Aquila chrysaetos*, *Alectoris* cf. *graeca*, *Larus* sp., *Athene noctua* cf. *lunellensis*

Det.: Mourer-Chauviré

Stored: Musée de Terra Amata, Nice

FR 243 Toga (Corse)

Type: c

Sources: Lambrecht 1933; Locard 1872; Lydekker 1891b; Newton 1922a

Fauna: *Aquila* sp., *Columba* cf. *livia*, *Turdus merula*, *Pyrhocorax pyrrhocorax*

Det.: Lydekker; Newton

Stored: British Museum (Natural History) or Musée d'Histoire Naturelle de Bâle ?

FR 244 "Tourbières d'Essonne" (Essonne)

Type: o

Sources: Lambrecht 1933; Milne-Edwards 1867-71

Fauna: *Columba palumbus*, *Gallinula chloropus*

Det.: Milne-Edwards

Notes: also known as Tourbes d'Essonnes; near Corbeil; this site seems likely to be of Holocene age

FR 245 Tournal (Aude)

Type: c

Sources: Lambrecht 1933; Milne-Edwards 1867-71, 1875a,b; Mourer-Chauviré 1975a; Paris 1912; Vilette 1983, 1984 (Giebel 1847)

Date: LP Magdalenian final 14C=12,860±230 BP

Fauna: *Anas platyrhynchos*, *Aquila chrysaetos*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Columba oenas*, *Pyrhocorax graculus*, *Corvus corax*

Date: LP Magdalenian moyen

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Cinclus cinclus*, *Pyrhcorax graculus*,
Corvus corax

Date: LP Magdalenian archaïque 14C=14,530±510–14,770±970 BP

Fauna: *Lagopus* sp., *Pyrhcorax graculus*, *Corvus corax*

Date: LP Aurignacian

Fauna: *Lagopus* sp., *Pyrhcorax graculus*, *Corvus corax*

Date: LP Aurignacian Ancien

Fauna: *Anas platyrhynchos*, *Columba oenas*, *Pyrhcorax graculus*

Layer: 1

Date: LP Mousterian 14C=>29,000–>34,000 BP

Fauna: *Circus* cf. *cyaneus*, *Lagopus* sp., *Larus argentatus*, *Columba oenas*, *Pyrhcorax graculus*

Det.: Vilette

Layer: "Breche Tournai"

Date: LP LG Magdalenian-Azilian

Fauna: *Lagopus lagopus*, *Bubo bubo*

Stored: Musée Archeologique de Narbonne

Layer: "Couche à sagaies"

Date: LP LG Magdalenian

Fauna: *Lagopus lagopus*, *Columba livia*, *Pyrhcorax graculus*

Layer: "Limons jaunes à quartzite"

Date: LP Denticulate Mousterian, Würm II ?

Fauna: *Anas platyrhynchos*, *Gypaetus barbatus*, *Aquila chrysaetos*, *Falco tinnunculus*,
Lagopus lagopus, *Perdix perdix*, *Charadrius morinellus*, *Scolopax rusticola*, *Columba livia*,
Columba palumbus, *Bubo bubo*, cf. *Galerida cristata*, *Turdus merula*, *Turdus viscivorus*,
Garrulus glandarius, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*,
Corvus monedula, *Corvus corax*, *Petronia petronia*

Stored: Le laboratoire de Paléontologie de la Rochefoucault

Layer: unstratified

Date: LP

Fauna: *Lagopus lagopus*

Stored: Musée d'Histoire Naturelle de Paris

Notes: Milne-Edwards collection.

Det.: Mourer-Chauviré

Fauna: *Accipiter nisus*, *Phasianus* sp., *Lagopus lagopus*, *Columba* sp.

Det.: Giebel; Milne-Edwards

Stored: Laboratoire de Préhistoire de la Rochefoucault, Département des Sciences de la Terre, Lyon

Notes: also known as Grande Grotte de Bize, Grotte de Bize and Bize; dates from layer E1 "Aurignacien archaïque" 29,000, 34,200, 35,800 BP; Serres also reported *Accipiter nisus* from this site, according to Milne-Edwards (1867–71)

FR 246 Trois Frères (Ariège)

Type: c

Sources: Clot & Mourer-Chauviré 1986; Mourer-Chauviré 1975a

Date: LP LG ? Magdalenian III-IV

Fauna: *Anas platyrhynchos*, *Falco peregrinus*, *Falco tinnunculus*, *Lagopus* sp., *Perdix perdix*, *Gallus gallus*, *Columba palumbus*?, *Nyctea scandiaca*, *Bubo bubo*, *Asio flammeus*, *Turdus merula*, *Pyrhocorax graculus*, *Montifringilla nivalis*

Det.: Mourer-Chauviré

Stored: Musée de Pujol à Montesquieu-Avantès and Département des Sciences de la Terre, Lyon

FR 247 Trou Violet (Ariège)

Type: c

Sources: Vaillant-Couturier & Vaillant-Couturier 1928; Wolf 1938–41

Layer: D

Date: LP LG ? Azilian

Fauna: *Anas platyrhynchos*, *Buteo buteo*, *Accipiter gentilis*, *Circus* sp., *Aquila chrysaetos*, *Falco* sp., *Coracias garrulus*, *Turdus merula*

Layer: C

Date: LP LG Sterile between Azilian and Magdalenian

Fauna: *Falco tinnunculus*, *Coracias garrulus*, *Turdus* cf. *pilaris*, *Turdus merula*

Layer: B

Date: LP LG Magdalenian

Fauna: *Anas platyrhynchos*, *Tetrao urogallus*, *Turdus pilaris*, *Pyrhocorax graculus*

Det.: Boule

Stored: Musée National d'Histoire Naturelle, Institut de Paléontologie Humaine, Paris

Notes: also known as Tuto Biouleto

FR 248 Trou de Diable (Jura)

Type: c

Source: Mourer-Chauviré 1975a

Layer: IV

Date: LP/Hol Würm IV/Post-Würm

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Gallinago media*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 249 Tute de Carrellore (Pyrénées-Atlantiques)

Alt.: 320

Type: c

Sources: Altuna 1972; Astre 1949; Clot & Mourer-Chauviré 1986

Date: LP LG Azilian, Alleröd ?

Fauna: *Columba livia*

Det.: Astre

Stored: Musée d'Histoire Naturelle de Toulouse ?

FR 250 Tutto de Camayot (Ariège)

Type: c

Sources: Astre 1939; Clot & Mourer-Chauviré 1986

Date: LP Upper Aurignacian 14C=24,200±600 BP (Würm III)

Fauna: *Buteo buteo*, *Bubo bubo*

Date: LP Middle Aurignacian 14C=24,200±600 BP (Würm III)

Fauna: *Aquila chrysaetos*, *Lagopus lagopus*, *Lagopus mutus*, *Corvus corax*, *Corvus corone*, *Pyrrhocorax graculus*, *Montifringilla nivalis*

Det.: Astre

Stored: Musée d'Histoire naturelle de Naturelle de Toulouse ?

Notes: also known as Grotte de St. Jean-de-Verges, Tute de Camayoy and La Tuto de Camalhot; also a date 14C=21,500±400 BP (Gravettian)

FR 251 Vergisson 2 (Saône-et-Loire)

Type: c ?

Source: Mourer-Chauviré 1975a

Layer: 4

Date: LP Mousterian Würm II?

Fauna: *Falco tinnunculus*, *Perdix perdix*, *Turdus iliacus*, *Garrulus glandarius*, *Pyrrhocorax graculus*, *Coccothraustes coccothraustes*

Det.: Mourer-Chauviré

Stored: Musée de Préhistoire de Solutré ?

FR 252 Vergranne (Doubs)

Type: o

Source: Campy et al. 1974

Date: MP cold phase of "Mindel récent"

Fauna: cf. *Tetrao urogallus*

Det.: Mourer-Chauviré

Stored: Département des Sciences de la Terre, Lyon

FR 254 Abri du Lagopède (Yonne)

Type: c

Source: Schmider et al. 1996

Layer: C1

Date: LP LG Dryas 2, Magdalenian

Fauna: *Falco tinnunculus*, *Charadrius hiaticula*

Det: Mourer-Chauviré

FR 255 Combe Saunière 1 (Dordogne)

Type.: c

Source: Geneste & Plisson 1993

Layer: IV

Date: LP Solutrean 14C=17,470±250 BP

Fauna: *Nyctea scandiaca*

FR 256 Grotte des Oiseaux (Dordogne)

Type: c

Source: Pittard 1928

Date: LP Magdalenian

Fauna: *Haliaeetus albicilla*, *Accipiter gentilis*, *Lagopus mutus*, *Perdix perdix*, *Columba oenas*, *Bubo bubo*, *Nyctea scandiaca*, *Alauda arvensis*, *Motacilla alba*, *Turdus pilaris*, *Turdus torquatus*, *Corvus corone*, *Corvus monedula*, *Pyrhocorax pyrhocorax*, *Pyrhocorax graculus*, *Sturnus vulgaris*, *Fringilla coelebs*, *Plectrophenax nivalis*

Det: Studer Stored: Musée d'Histoire Naturelle, Genève?

FR 257 Les Capins (?)

Type: ?

Source: Mourer-Chauviré et al. 1975

Fauna: *Grus primigenia*

Det: Milne-Edwards

Stored: Musée d'Histoire naturelle de Paris

GEORGIA

GE 1 Abkhaskie pamyatniki (Abkhazia)

Type: c

Source: Baryshnikov & Potapova 1988

Fauna: *Corvus corax*

GE 2 Akhalkalaki

Alt.: 1,719

Type: c

Sources: Burchak-Abramovich 1966b; Gabunia & Vekua 1981

Date: EP

Fauna: *Vanellus* sp.

Date: LP LG border Pleist./Hol.

Fauna: *Anser anser*, *Anas platyrhynchos*, *Anas crecca*, *Anas strepera*, *Aythya ferina*, *Mergus albellus*, *Falco naumanni*, *Falco tinnunculus*, *Falco vespertinus*, *Perdix perdix*, *Turdus* sp.

GE 3 Bavra (Abkhazia)

Type: c

Source: Ganja & Burchak-Abramovich 1992

Date: LP UP

Fauna: *Gallus* sp.

GE 4 Dmanisi

Type: o

Source: Burchak-Abramovich & Vekua 1990

Date: LPI/EP "Oldest Pleistocene" 1.6–1.8 MA BP

Fauna: *Struthio dmanisensis*

Det.: Burchak-Abramovich; Vekua

GE 5 Dzhruchula (Imeretia)

Type: c

Sources: Baryshnikov & Cherepanov 1985; Burchak-Abramovich 1974, 1975

Date: LP Mousterian

Fauna: *Anser anser*, *Anas platyrhynchos*, *Anas penelope*, *Falco tinnunculus*, *Tetrao mlokosiewiczii*, *Perdix perdix*, *Alectoris chukar*, *Coturnix coturnix*, *Phasianus colchicus*, *Turdus* sp., *Garrulus glandarius*, *Pica pica*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*,

Det.: Burchak-Abramovich

GE 6 Gvardzhilas-Klde (Imeretia)

Type: c

Sources: Burchak-Abramovich 1966b, 1969, 1974, 1975; Burchak-Abramovich & Bendukidze 1971a

Date: LP UP "Magdalenian"

Fauna: *Haliaeetus albicilla*, *Tetrao mlokosiewiczii*, *Gallus* sp., *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Crex crex*, *Turdus merula*, *Pyrrhocorax pyrrhocorax*, *Erythrurus rubicilla*

Det.: Burchak-Abramovich

GE 7 Kep Bogaz (Abkhazia)

Alt.: 435

Type: c

Sources: Baryshnikov & Cherepanov 1985; Burchak-Abramovich & Lakerbai 1974; Musil 1980b; Ganja & Burchak-Abramovich 1992 (Burchak-Abramovich 1959, 1964, 1965b, 1969b, 1980b)

Date: LP LG UP-Mes. layer 4 = $14,640 \pm 350$ BP, layer 5 = $17,300 \pm 500$ BP (14C)Fauna: *Tetrao mlokosiewiczii*, *Gallus* sp., *Falco tinnunculus*, *Columba palumbus*, *Bubo bubo*

Det.: Burchak-Abramovich ?

Notes: also known as Kjøp-Bugas, Kej-Bogaz, Kep-Bagaz and Apiancha

GE 8 Khupyn-Ipshakhva (Abkhazia)

Type: c

Sources: Burchak-Abramovich 1975; Burchak-Abramovich & Bendukidze 1971b; Burchak-Abramovich & Lakerbai 1974; Musil 1980b (Burchak-Abramovich 1965b, 1969b, 1971b, Bendukidze 1979)

Date: LP LG ? LUP-Mes.

Fauna: *Podiceps cristatus*, *Anser anser*, *Anas platyrhynchos*, *Anas crecca*, *Anas acuta*, *Aythya marila*, *Aythya fuligula*, *Mergus merganser*, *Aquila chrysaetos*, *Aquila* sp., *Haliaeetus albicilla*, *Gypaetus barbatus*, *Gyps fulvus*, *Circus aeruginosus*, *Falco tinnunculus*, *Falco columbarius*, *Tetrao mlokosiewiczii*, *Phasianus colchicus*, *Larus argentatus*, *Dryocopus martius*, *Anthus trivialis*, *Turdus philomelos*, *Corvus corax*, *Pyrrhocorax graculus*

Det.: Burchak-Abramovich

Notes: also known as Chododny Grot, Khupinipshakva, Khupyn Ipschakhva and Chupyna; *Larus argentatus* also reported as *Larus ichthyaetus* (Burchak-Abramovich & Lakerbai 1974)

GE 9 Kudaro 1 (South Ossetia)

Alt.: 1,600

Type: c

Sources: Baryshnikov & Cherepanov 1985; Burchak-Abramovich 1974, 1975, 1980a; Burchak-Abramovich & Bendukidze 1971a; Burchak-Abramovich & Lyubin 1972; Gerasimov 1978

Layer: 1–2

Date: LP Mesolithic

Fauna: *Buteo buteo*, *Phasianus colchicus*, *Dryocopus martius*, *Hirundo rupestris*

Layer: 3 unstratified

Date: LP Mousterian

Fauna: *Gypaetus barbatus*, *Aegypius monachus*, *Pyrhcorax graculus*

Layer: 3a

Date: LP Mousterian 14C=44,000±2,000 BP

Fauna: *Anas crecca*, *Falco tinnunculus*, *Falco columbarius*, *Tetrao mlokosiewiczii*, *Dryocopus martius*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Layer: 3b

Date: LP Mousterian 14C=44,000±2,000 BP

Fauna: *Anas clypeata*, *Falco tinnunculus*, *Tetrao mlokosiewiczii*, *Tetraogallus caucasicus*, *Coturnix coturnix*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Layer: 3c

Date: LP Mousterian 14C=44,000±2,000 BP

Fauna: *Anser anser*, *Falco tinnunculus*, *Tetraogallus caucasicus*, *Tetrao mlokosiewiczii*, *Alectoris chukar*, *Perdix perdix*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Notes: Possibly *Alectoris graeca* instead of *Alectoris chukar*

Layer: 3/4

Date: LP Mousterian

Fauna: *Pandion haliaetus*, *Falco tinnunculus*, *Tetraogallus* cf. *caucasicus*, *Bubo* cf. *bubo*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Layer: 4

Date: LP Mousterian "Brörup/Amersfoort"

Fauna: *Anas crecca*, *Aythya nyroca*, *Accipiter nisus*, *Falco tinnunculus*, *Tetrao mlokosiewiczii*, *Alectoris chukar*, *Perdix perdix*, *Columba livia*, *Athene noctua*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Notes: Possibly *Alectoris graeca* instead of *Alectoris chukar*

Layer: 5a

Date: MP Acheulean

Fauna: *Aythya ferina*, *Buteo buteo*, *Aquila chrysaetos*, *Falco tinnunculus*, *Falco subbuteo*, *Tetrao mlokosiewiczii*, *Tetraogallus* cf. *caucasicus*, *Alectoris chukar*, *Perdix perdix*, *Phasianus colchicus*, *Gallus* sp., *Apus melba*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Notes: Possibly *Alectoris graeca* instead of *Alectoris chukar*

Layer: 5b

Date: MP Acheulean

Fauna: *Accipiter gentilis*, *Falco tinnunculus*, *Tetrao mlokosiewiczii*, *Perdix perdix*, *Phasianus colchicus*, *Anthus* sp., *Turdus* sp., *Pyrhcorax graculus*, *Pyrhcorax pyrrhcorax*

Notes: *Pyrhcorax graculus* instead of *Pyrhcorax pyrrhcorax*, according to Burchak-Abramovich (1975)

Layer: 5c

Date: MP Acheulean 360 ± 90 KA BP

Fauna: *Tetrao mlokosiewiczii*, *Pyrhcorax graculus*, *Pyrhcorax pyrrhcorax*

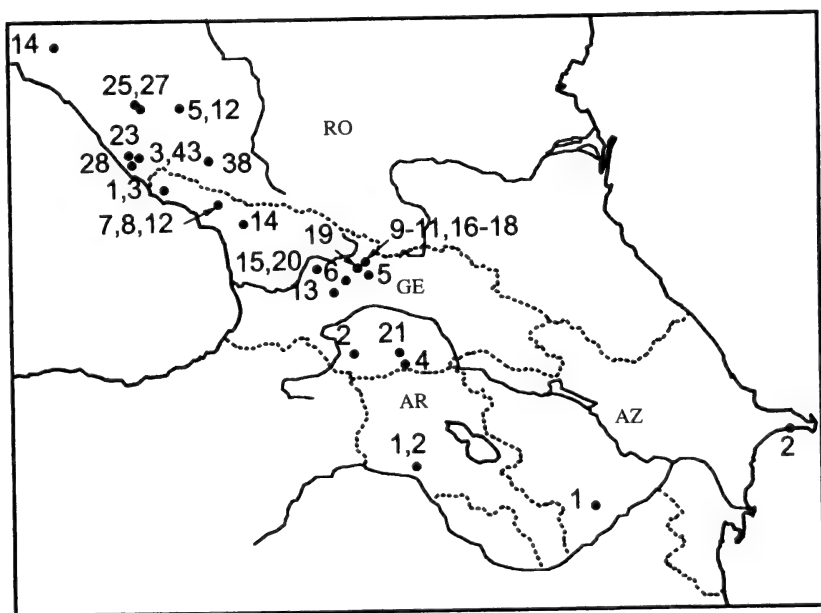
Layer: 5 undifferentiated

Date: MP Acheulean

Fauna: *Falco tinnunculus*, *Tetrao mlokosiewiczii*, *Gallus* sp., *Columba livia*, *Strix aluco*, *Pyrhcorax graculus*, *Pyrhcorax pyrrhcorax*

Det: Burchak-Abramovich

Notes: *Gallus* sp. is actually a new species, *Gallus kudarensis* according to Burchak-Abramovich (Burchak-Abramovich 1991; Ganja & Burchak-Abramovich 1992); this however does not seem to have been described yet, and is therefore for the time being a *nomen nudum*



ARMENIA (AR), AZERBAIJAN (AZ), GEORGIA (GE), RUSSIA (RO)

GE 10 Kudaro 2 (South Ossetia)

Alt.: 1,650

Type: c

Source: Baryshnikov & Cherepanov 1985

Layer: 1-2

Date: LP UP/Mesolithic

Fauna: *Falco peregrinus/cherrug*

Layer: 3

Date: LP Mousterian

Fauna: *Anas* cf. *querquedula*, *Falco tinnunculus*, *Falco subbuteo*, *Perdix perdix*, *Tetrao mlokosiewiczii*, *Pyrhcorax pyrhcorax*

GE 11 Kudaro 3 (South Ossetia)

Alt.: 1,564

Type: c

Sources: Baryshnikov & Cherepanov 1985; Gerasimov 1978

Layer: 3 upper

Date: LP Mousterian

Fauna: *Aquila heliaca*, *Perdix perdix*, *Bubo* cf. *bubo*

Layer: 3 lower

Date: LP Mousterian

Fauna: *Falco tinnunculus*, *Coturnix coturnix*

Layer: 3/4

Date: LP Mousterian

Fauna: *Gypaetus barbatus*, *Falco tinnunculus*, *Tetrao mlokosiewiczii*

Layer: 4 upper.

Date: LP Mousterian

Fauna: *Falco columbarius*, *Coturnix coturnix*, *Pyrhcorax pyrhcorax*

Layer: 4 lower

Date: LP Mousterian

Fauna: *Falco tinnunculus*, *Turdus* sp., *Garrulus glandarius*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*

Layer: 6

Date: MP Acheulean, TL=ca. 350 KA BP

Fauna: *Tetraogallus* cf. *caucasicus*

Layer: 7

Date: MP Acheulean

Fauna: *Falco subbuteo*

Layer: 8

Date: MP Acheulean

Fauna: *Columba livia*

Layer: 8a

Date: MP Acheulean, TS=560 ± 112 KA BP

Fauna: *Pyrhcorax pyrhcorax*

Det.: Baryshnikov & Pastukhov

GE 12 Kva-Chara (South Abkhazia)

Alt.: 700

Type: c

Sources: Baryshnikov & Cherepanov 1985; Musil 1980b (Burchak-Abramovich 1980b)

Date: LP LG UP-MES

Fauna: *Podiceps cristatus*, *Aythya fuligula*, *Aquila* sp., *Haliaeetus albicilla*, *Falco tinnunculus*, *Tetrao mlokosiewiczii*, *Phasianus colchicus*, *Larus* sp., *Columba palumbus*, *Dryocopus martius*, *Bubo bubo*, *Corvus corax*

Det.: Burchak-Abramovich?

Notes: *Falco tinnunculus* also reported as *Falco naumanni* (Burchak-Abramovich & Lakerbai 1974)

GE 13 Mgwimewi (Imeretia)

Type: c

Sources: Burchak-Abramovich 1972; Burchak-Abramovich & Bendukidze 1971a; Ganja & Burchak-Abramovich 1992

Date: LP UP

Fauna: *Gallus* sp.

Det.: Burchak-Abramovich

GE 14 Okumi I (Abkhazia)

Type: c

Sources: Baryshnikov & Cherepanov 1985; Potapova 1991 (Burchak-Abramovich 1980b)

Date: LP Mousterian-Eneolithic

Fauna: *Tetraogallus caucasicus*, *Tetrao mlokosiewiczii*, *Phasianus colchicus*

Det.: Burchak-Abramovich

GE 15 Sagvardzhile (Imeretia)

Type: c

Sources: Burchak-Abramovich 1966b, 1975 (Bendukidze 1979)

Date: LP UP

Fauna: *Perdix perdix*, *Anas platyrhynchos*

Det.: Burchak-Abramovich

Notes: also known as Sagvardzhilas-Klde

GE 16 Sary-Leget (South Ossetia)

Type: c

Source: Baryshnikov & Cherepanov 1985

Layer: 3

Date: LP ? Mesolithic

Fauna: *Tetrao mlokosiewiczii*

GE 17 Shagat-Khokh-Leget (South Ossetia)

Type: c

Source: Baryshnikov & Cherepanov 1985

Layer: 2-1

Date: LP ? Mesolithic

Fauna: *Tetrao mlokosiewiczii*

Layer: 2-1/2

Date: LP ? Mesolithic

Fauna: *Perdix perdix*, *Anthus* sp.

Layer: 2-2

Date: LP ? Mesolithic

Fauna: *Tetrao mlokosiewiczii*

Layer: 2-3

Date: LP ? Mesolithic

Fauna: *Anas platyrhynchos*, *Perdix perdix*

Layer: 2-3

Date: LP Mousterian

Fauna: *Alectoris chukar*, *Falco subbuteo*, *Corvus corone*

Det.: Baryshnikov & Pastukhov

GE 18 Talyng-Leget (South Ossetia)

Type: c

Source: Baryshnikov & Cherepanov 1985

Layer: 3

Date: LP ? Mesolithic

Fauna: *Podiceps* cf. *nigricollis*, *Anas* cf. *platyrhynchos*, *Anas querquedula/crecca*, *Falco tinnunculus*, *Alectoris chukar*, *Perdix perdix*, *Coturnix coturnix*, *Tetrao mlokosiewiczii*, *Crex crex*, *Columba palumbus*, *Dendrocopos* sp., *Pyrhcorax graculus*, *Pyrhcorax* sp.

Layer: 4

Date: LP ? Mesolithic

Fauna: *Anas* sp., *Coturnix coturnix***GE 19 Tsona (South Ossetia)**

Alt.: 2,100

Type: c

Sources: Baryshnikov & Potapova 1988; Burchak-Abramovich 1966b, 1969a, 1971a, 1974, 1975

Date: MP-LP (Late Acheuléen-Mousterian)

Fauna: *Gypaetus osseticus*, *Tetraogallus* cf. *caucasicus*, *Pyrhcorax pyrrhcorax*

Det.: Burchak-Abramovich

Notes: also known as Bugas-Klde; the species of *Pyrhcorax* is *graculus* according to Burchak-Abramovich (1969a, 1971a, 1974) and Baryshnikov & Potapova (1988)

GE 20 Tsutskhvat (Grusinien (Imeretia))

Alt.: 350

Type: c

Sources: Baryshnikov & Cherepanov 1985; Burchak-Abramovich 1975; Gerasimov 1978; Vekua 1972 (Vekua 1978)

Layer: Upper Cave

Date: LP Mousterian

Fauna: *Falco vespertinus*, *Pica pica*

Layer: Bizonova Cave

Date: LP Mousterian

Fauna: *Aquila chrysaetos*, *Aegypius monachus*

Det.: Vekua

Layer: Bronzovaya Cave

Date: LP Mousterian

Fauna: *Anas platyrhynchos*, *Perdix perdix*, *Columba livia*, *Hirundo rupestris*, *Pyrhocrax graculus*

Layer: ?

Date: LP "Aurignacian" "Mousterian" (Late Mousterian according to Vekua (1972))

Fauna: *Anas platyrhynchos*, *Aquila chrysaetos*, *Aegypius monachus*, *Falco vespertinus*, *Columba livia*, *Pica pica*, *Pyrhocrax pyrrhocrax*

Det.: Vekua

GE 21 Zurtaketi

Type: c

Sources: Burchak-Abramovich 1966b, 1980b; Burchak-Abramovich & Bendukidze 1969

Date: LP ? LG ? Epipaleolithic

Fauna: *Alectoris chukar*, *Vanellus vanellus*, *Anas acuta*

Det.: Burchak-Abramovich

Notes: *Alectoris chukar* also reported as *Alectoris graeca* (Burchak-Abramovich 1966).**GERMANY****BRD 1 Altenburg bei Pössneck (Thüringen)**

Source: Lambrecht 1933

Fauna: *Tetrao tetrix*, *Lagopus lagopus***BRD 2 Andernach (Rheinland-Pfalz)**

Alt.: 82

Type: o

Sources: Andree 1939; Bosinski 1979; Koken 1912 (Schaafhausen 1888, Poplin 1972, Wiegers 1909)

Date: LP LG Magdalenian/Federmesser, Late Bölling, 14C=11,300–13,200 BP

Fauna: *Anas platyrhynchos*?, *Anas* sp., *Lagopus lagopus*, *Lagopus* sp., *Bonasa bonasia*,
Grus grus/*Cygnus cygnus*, *Asio flammeus*?, *Corvus corax*

Det.: Koken ?; Poplin

Notes: two separate excavations

BRD 3 Andernach-Martinsberg (Rheinland-Pfalz)

Type: o

Source: Street 1993

Date: LP Magdalenian ca. 13,000 BP

Fauna: *Cygnus* sp.?, *Anser* sp., *Lagopus* sp., *Corvus corax*

Det.: Street ?

BRD 4 Balver Höhle (Nordrhein-Westfalen)

Alt.: 233

Type: c

Sources: Lambrecht 1933; Nehring 1880; Wolf 1938–41

Date: LP

Fauna: *Lagopus lagopus*, *Anas platyrhynchos*, *Fringilla* sp.

Det.: Nehring

BRD 5 Baumannshöhle bei Rübeland (Sachsen-Anhalt)

Type: c

Sources: Blasius 1901; Koken 1912; Lambrecht 1933, Wolf 1938–41

Date: LP

Fauna: *Lagopus mutus*, cf. *Podoces* sp.

BRD 6 Beilsteinhöhle (Baden-Württemberg)

Type: c

Sources: Lambrecht 1933; Wolf 1938–41 (Fraas 1895)

Date: LP ?

Fauna: *Anser* sp., *Accipiter* sp., *Picus* sp., *Sturnus vulgaris*, *Corvus* sp.

Det.: Fraas ?

BRD 7 Bettelküche bei Sulzbach-Rosenberg (Bayern)

Type: c

Source: Lepiksaar 1978

Layer: 5

Date: LP LG "ausklingenden Paläolithikum"

Fauna: *Cygnus cygnus*, *Anas platyrhynchos*, *Anas crecca*, *Anas penelope*, *Aquila chrysaetos*, *Lagopus lagopus*, *Tetrao tetrix*, *Tetrao urogallus*, *Perdix perdix*, *Coturnix coturnix*, *Gallinago media*, *Scolopax rusticola*, *Bubo bubo*, *Asio otus*, *Hirundo* sp., *Motacilla* cf. *alba*, *Turdus* sp., *Corvus monedula*

Layer: 5 Liegendes

Date: LP LG

Fauna: *Anas penelope*, *Lagopus lagopus*

Det.: Lepiksaar

Notes: "5 Liegendes" = below 5

BRD 8 Bildstockfels (Baden-Württemberg)

Type: c

Sources: Andree 1939; Wolf 1938–41 (Peters 1930)

Date: LP LG Magdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrax*, *Tetrao urogallus*, *Falco rusticolus*, *Turdus* sp., *Turdus philomelos*, *Fringilla montifringilla*, *Emberiza* sp.

Det.: Mandach

BRD 9 Bilzingsleben (Sachsen-Anhalt)

Type: o

Sources: Fischer in press

Date: MP Holstein

Fauna: *Cygnus olor*, *Anas platyrhynchos*, *Bucephala clangula*, *Haliaeetus albicilla*, *Strix aluco*, *Turdus* sp.

Det.: Fischer

BRD 11 Bocksteinhöhle (Baden-Württemberg)

Type: c

Sources: Lehman 1969; Musil 1980b; Wolf 1938–41 (Bürger 1892)

Date: LP ?

Fauna: *Cygnus* sp., *Anser* sp., *Anas* sp., *Picus* sp., *Sturnus* sp.

Layer: c

Date: LP

Fauna: *Anser anser*

Layer: d

Date: LP

Fauna: *Buteo buteo*

Layer: Querschacht III

Date: LP ?

Fauna: *Tetrao urogallus*

Layer: Querschacht II

Date: LP ?

Fauna: *Tetrao urogallus*

Notes: also known as Bocksteingrotte

BRD 12 Bocksteinschmiede (Baden-Württemberg)

Type: c, o

Sources: Andree 1939; Lehmann 1969; Mellars 1995; Musil 1980b; Wetzel 1935, 1957

Layer: Brandplatte Schicht F

Date: LP?

Fauna: *Anser* sp., *Lagopus* sp., *Tetrao urogallus*

Layer: Abhang Schicht n

Date: LP

Fauna: *Tachybaptus ruficollis*?

Layer: Abhang Schicht g

Date: LP

Fauna: *Tetrao tetrix*

Layer: Brandplatte Schicht g

Date: LP

Fauna: *Tetrao tetrix*, *Tetrao urogallus*

Layer: 6

Date: LP "Acheuleen" (Early Würm?)

Fauna: *Anser* sp.

Layer: d, "unter dem Höhleneingang"

Date: LP?

Fauna: *Tetrao tetrix*, *Tetrao urogallus*

Layer: b, "unter dem Höhleneingang"

Date: LP?

Fauna: *Tetrao tetrix*

Layer: ?

Date: LP Micoquien

Fauna: *Cygnus* sp.

Notes: also known as Bockstein Törle; is actually the entrance area of site BRD 11

BRD 13 Borneck (Schleswig-Holstein)

Type: o

Sources: Heinrich 1977; Herre & Requate 1958

Date: LP LG Ahrensburgien, Callenhardt-stufe (Dryas 3)

Fauna: Anatidae spp., *Lagopus lagopus*

BRD 14 Breitenberghöhle bei Gössweinstein (Bayern)

Alt.: 463

Type: c

Sources: Brunner 1957, 1958a

Date: MP/Hol

Fauna: *Anser fabalis* ?, *Anas strepera*, *Anas penelope*, *Mergus serrator*, *Falco subbuteo*, *Falco columbarius*, *Perdix perdix*, *Lagopus lagopus*, *Tetrao tetrix*, *Gallus* sp., *Ardearia interpres*?, *Calidris alpina*, *Scolopax rusticola*, *Cuculus canorus*, *Strix aluco*, *Asio otus*, *Asio flammeus*, *Glaucidium passerinum*, *Galerida cristata*, *Hirundo rustica*, *Troglodytes gracilis*, *Turdus pilaris*, *Turdus* sp., *Corvus corone*, *Corvus monedula*, *Nucifraga caryocatactes*, *Garrulus glandarius*, *Pica pica*, *Coccothraustes coccothraustes*

Det.: Jánossy, Brunner

Notes: this site contained remains both from a Middle Pleistocene ("Holstein") interglacial and from the Flandrian climatic optimum; the bird remains were lost during the Hungarian uprising in 1956 and no stratigraphic information is available

BRD 15 Breitenfurter Höhle (Bayern)

Type: c

Source: Koby 1957a (Heller 1956)

Fauna: *Haliaeetus albicilla***BRD 16 Brillenhöhle (Baden-Württemberg)**

Alt.: 600

Type: c

Source: Boessneck & von den Driesch 1973

Layer: IV

Date: LP LG Magdalenian

Fauna: *Anas platyrhynchos*, *Anas acuta*, *Anas crecca*, *Cygnus cygnus*, *Lagopus* sp., *Tetrao urogallus*, *Porzana porzana*, *Larus canus*, *Bubo bubo*, *Nyctea scandiaca*, *Aegolius funereus*, *Picidae*, *Hirundo rustica* ?, *Corvus corax*, *Corvus monedula*, *Cinclus cinclus*, *Turdus* sp., *Turdus iliacus*, *Plectrophenax nivalis*

Layer: V

Date: LP Gravettian

Fauna: *Anas platyrhynchos*, *Bucephala clangula*, *Mergus merganser*, *Falco tinnunculus*, *Lagopus* sp., *Nyctea scandiaca*, *Alauda arvensis*, *Cinclus cinclus*, *Turdus iliacus*, *Corvus corax*, *Corvus monedula*, *Pyrhcorax graculus*

Layer: VI

Date: LP Gravettian

Fauna: *Anser fabalis/anser*, *Anas platyrhynchos*, *Anas crecca*, *Aythya fuligula*, *Bucephala clangula*, *Falco tinnunculus*, *Lagopus* sp., *Tetrao tetrix*, *Scolopax rusticola*, *Numenius arquata*, *Actitis hypoleucos*, *Larus canus*, *Sterna hirundo*, *Nyctea scandiaca*, *Alauda arvensis*, *Hirundo rustica* ?, *Prunella collaris*, *Cinclus cinclus*, *Turdus* sp., *Turdus philomelos*, *Turdus iliacus*, *Corvus corax*, *Corvus monedula*, *Pyrhcorax graculus*, *Plectrophenax nivalis*, *Montifringilla nivalis*

Layer: VII

Date: LP Gravettian 14C > 25,000 BP

Fauna: *Anser anser/fabalis*, *Anser albifrons*, *Anas platyrhynchos*, *Anas acuta*, *Anas penelope*?, *Anas crecca*, *Aythya fuligula*, *Bucephala clangula*, *Melanitta nigra*, *Mergus merganser*, *Falco columbarius*, *Falco tinnunculus*, *Lagopus* sp., *Tetrao tetrix*, *Perdix perdix*, *Phuvalis apricaria*, *Gallinago media* ?, *Lymnocryptes minimus*, *Tringa totanus*, *Philomachus pugnax* ?, *Larus canus*, *Nyctea scandiaca*, *Asio flammeus*, *Picidae*, *Alauda arvensis*, *Hirundo rustica* ?, *Prunella collaris*, *Cinclus cinclus*, *Turdus* sp., *Turdus iliacus*, *Corvus corax*, *Corvus monedula*, *Pyrhcorax graculus*, *Montifringilla nivalis*

Layer: VIII

Date: LP Aurignacian

Fauna: *Mergus merganser*, *Lagopus* sp., *Corvus monedula*

Layer: IX

Date: LP Aurignacian

Fauna: *Corvus monedula*

Layer: X

Date: LP Aurignacian

Fauna: *Anas platyrhynchos*, *Anas acuta*, *Asio flammeus*, *Pyrhcorax graculus*

Layer: XI

Date: LP Aurignacian

Fauna: *Lagopus* sp.

Layer: XIII

Date: LP Aurignacian

Fauna: *Corvus monedula*/*Pyrhcorax graculus*

Layer: XIV

Date: LP Aurignacian

Fauna: *Anas platyrhynchos*, *Lagopus* sp., *Cinclus cinclus*, *Corvus corax*, *Corvus monedula*/*Pyrhcorax graculus*

Layer: XV

Date: LP Aurignacian

Fauna: *Falco tinnunculus*, *Lagopus* sp., *Oenanthe oenanthe*, *Corvus monedula*/*Pyrhcorax graculus*

Layer: XVI

Date: LP Aurignacian

Fauna: *Anas platyrhynchos*, *Lagopus* sp., *Nyctea scandiaca*

Layer: XIX

Date: LP Aurignacian

Fauna: *Anas platyrhynchos*, *Lagopus* sp., *Corvus monedula*

Det.: Boessneck; von den Driesch; Lepiksaar

BRD 17 Bruch Xaver Schöpfung, Wintershof (Bayern)

Type: c

Source: Groiss 1981

Date: LP

Fauna: *Turdus* sp.?

BRD 18 Buchberg bei Münster (Bayern)

Type: c

Sources: Birkner 1921; Lambrecht 1933; Schlosser 1926b

Date: LP Mousterian

Fauna: *Anser* sp.?, *Anas platyrhynchos*, *Lagopus mutus*, *Tetrao tetrix*, *Gallus* sp.?, *Bubo bubo*, *Turdus* sp.?

Det.: Schlosser

BRD 19 Buchenloch (Rheinland-Pfalz)

Type: c

Sources: Andree 1939; Koken 1912; Musil 1980b; Wolf 1938–41 (Wiegers 1909)

Layer: 4 (?)

Date: LP Mousterian ?

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Corvus* sp.

Notes: stratigraphy and cultures uncertain

BRD 20 Burgtonna (Thüringen)

Type: o

Source: Heinrich & Jánossy 1978a,b

Layer: "Interglacial Travertines"

Date: Probably IS 5e, Eem TL=101±9, 104±8, 111±7 KA BP

Fauna: *Anas platyrhynchos*

Layer: 2C (Deckschichten above interglacial travertine)

Date: LP "Ältere Weichsel-Kaltzeit"

Fauna: *Anas querquedula*, *Parus major*

Det.: Jánossy & Heinrich

BRD 21 Büttnerloch bei Thuisbrunn (Bayern)

Type: c

Sources: Brunner 1936b; Wolf 1938–41

Date: LP ?

Fauna: *Anas* sp., *Anas platyrhynchos*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Coturnix coturnix*, *Porzana* sp., *Crex crex*, *Otis tarda*, *Philomachus pugnax*, *Tringa* sp., *Calidris* sp., *Asio* sp., *Asio otus*, *Surnia ulula*, *Hirundo rustica*, *Turdus merula* ?, *Turdus* sp., *Turdus viscivorus*, *Lanius collurio*, *Corvus monedula*, *Pica pica*, *Nucifraga caryocatactes*, *Pyrrhula* sp.

Det.: Soergel

BRD 22 Das Felsställe (Baden-Württemberg)

Type: c

Source: Vilette 1987a

Layer: AH III

Date: LP LG Magdalenian

Fauna: *Lagopus* sp.

Layer: AH IIIa

Date: LP LG Magdalenian 14C=12,680±120 BP

Fauna: *Lagopus* sp., *Tetrao tetrix*, *Charadrius morinellus*

Layer: AH IIIb

Date: LP LG Magdalenian 14C=11,800–12,400 BP (5 dates)

Fauna: *Anser* cf. *fabalis*, cf. *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus* sp.

Layer: unstratified

Date: LP LG ?; disturbed

Fauna: *Anser* cf. *fabalis*, *Lagopus* sp.

Det.: Vilette

BRD 23 Deilinghofen (?)

Source: Fischer & Mauersberger 1989

Date: LP

Fauna: *Tetrao tetrix*

Stored: Museum für Naturkunde der Humboldt-Universität zu Berlin

BRD 24 Distlerkeller in Pottenstein (Bayern)

Type: c

Source: Brunner 1952c

Layer: A, BII, IV

Date: LP

Fauna: *Lagopus* sp.

Det.: Brunner

BRD 25 Dohlenloch bei Pottenstein (Bayern)

Type: c

Source: Brunner 1952b

Layer: B 1

Date: LP

Fauna: *Lagopus* sp.

Det.: Brunner

BRD 26 Dürrhohe (Bayern)

Type: c

Sources: Lambrecht 1933; Wolf 1938–41 (Schlosser 1900)

Date: LP ?

Fauna: *Anser anser*, *Tetrao urogallus*, *Gallus gallus*, *Bubo bubo*

Det.: Schlosser

Notes: also known as Schwaighöhle; probably Holocene; however the presence of *Hystrix* might indicate early Würmian age**BRD 27 Einhornhöhle (Niedersachsen)**

Alt.: 350

Type: c

Source: Wolf 1938–41 (Struckman 1883–84)

Date: LP UP

Fauna: *Anas platyrhynchos*, *Tetrao tetrix*, *Gallus gallus*, *Strix aluco*, *Turdus merula*, *Turdus viscivorus*, *Corvus corone*, *Corvus frugilegus*, *Garrulus glandarius*, *Pica pica*

Notes: may be Holocene.

BRD 28 Elisabethhöhle (Bayern)

Type: c

Sources: Lambrecht 1933, Nehring 1880, Wolf 1938–41

Date: LP?

Fauna: *Anas* sp., *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Scolopax* sp., *Bubo* sp., *Strix* sp., *Corvus* cf. *monedula*

Det.: Nehring

BRD 29 Enzensdorfer Loch bei Vorra (Bayern)

Type: c

Source: Brunner 1937

Date: LP

Fauna: *Lagopus lagopus*

Det.: Brunner

BRD 30 Erpfingen (Baden-Württemberg)

Type: c

Source: Jánossy 1976c

Date: MP

Fauna: *Tetrao praeurogallus*

Det.: Jánossy

BRD 31 Finstermühlhöhle (Bayern)

Type: c

Sources: Schlosser 1926b; Lambrecht 1933; Musil 1980b

Layer: Upper

Date: LP "Spätglazial"

Fauna: *Lagopus* sp.

Det.: Schlosser

BRD 32 Fohlenhaushöhlen in Lonetal (Baden-Württemberg)

Type: c

Source: Lepiksaar 1978

Layer: 3

Date: LP LG "ausklingenden Paläolithikum"

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Falco tinnunculus*, *Lagopus lagopus*, *Tetrao tetrix*, *Crex crex*, *Asio flammeus*, *Hirundo* sp.?, *Turdus* sp., *Luscinia svecica*, *Oenanthe oenanthe* ?

Det.: Lepiksaar

BRD 33 Friesing (Bayern)

Type: o

Source: Hoch 1974

Date: LP, Late Eem "Tannenzeit" (IS 5e/5d?)

Fauna: *Porzana porzana*

Det.: Hoch

Stored: Bayerische Staatssammlung für Paläontologie und Historische Geologie

BRD 34 Fuchskirche (Thüringen)

Alt.: 330

Type: c

Source: Feustel & Musil 1974

Layer: 1–2

Date: LP/Hol

Fauna: *Corvus monedula*/*Pica pica*

Layer: 2

Date: LP/Hol

Fauna: *Perdix perdix*

Layer: 3
 Date: LP/Hol
 Fauna: *Pica pica*
 Det.: Musil

BRD 35 Fuchsloch bei Gleitsen (?)

Type:
 Source: Lambrecht 1933 (Richter 1879)
 Date: ?
 Fauna: *Anas* sp., *Lagopus lagopus*, *Tetrao urogallus*, *Tetrao tetrix*, *Coturnix coturnix*,
Gallus sp., *Hirundo rustica*, *Corvus corone*

BRD 36 Fuchsloch bei Siegmansbrunn (Bayern)

Type: c
 Source: Brunner 1954
 Layer: b
 Date: LP (Eem?)
 Fauna: *Tetrao tetrix*
 Det.: Brunner
 Notes: *Hystrix* present.

BRD 37 Fuchsloch im Krockstein bei Rübeland (Sachsen-Anhalt)

Alt.: 390
 Type: c
 Source: Arnold et al. 1982
 Date: LP Mid-Weichsel ?
 Fauna: *Anas crecca*, *Anas* sp., *Aythya fuligula*, *Mergus merganser*, *Circus cyaneus*, *Falco peregrinus*, *Falco tinnunculus*, *Falco* sp., *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Perdix perdix*, *Columba palumbus*, *Strix aluco*, *Surnia ulula*, *Asio otus*, *Aegolius funereus*, *Picus canus*, *Picoides tridactylus*, *Corvus monedula*, *Emberizidae*
 Det.: Fischer
 Stored: Paläontologischen Museum des Museums für Naturkunde, Berlin

BRD 38 Gaiskirche im Püttlachtal (Bayern)

Type: c
 Source: Brunner 1938
 Layer: Abri
 Date: LP
 Fauna: *Tetrao tetrix*, *Lagopus lagopus*, *Charadrius* sp., *Picus viridis*, *Turdus viscivorus*,
Turdus philomelos, *Cinclus cinclus*, *Nucifraga caryocatactes*, *Garrulus glandarius*,
Pyrrhula pyrrhula
 Layer: 3

Date: LP LG

Fauna: *Accipiter gentilis*, *Tetrao tetrax*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Calidris* sp., *Columba palumbus*, *Hirundo rustica*, *Turdus viscivorus*, *Turdus pilaris*, *Turdus merula*, *Turdus torquatus*, *Luscinia luscinia*, *Pica pica*, *Emberiza citrinella*

Layer: 4

Date: LP LG

Fauna: *Anas platyrhynchos*, *Anas querquedula*, *Perdix perdix*, *Tetrao tetrax*, *Lagopus lagopus*, *Lagopus mutus*, *Crex crex*, *Pluvialis apricaria*, *Calidris* sp., *Turdus viscivorus*, *Fringilla coelebs*

Layer: 5

Date: LP LG

Fauna: *Anas querquedula*, *Tetrao tetrax*, *Lagopus lagopus*, *Lagopus mutus*, *Rallus aquaticus*, *Porzana porzana*, *Calidris* sp., *Alle alle*, *Corvus corax*

Layer: 6

Date: LP LG (Magdalenian)

Fauna: *Falco tinnunculus*, *Tetrao tetrax*, *Lagopus lagopus*, *Lagopus mutus*, *Calidris* sp., *Alauda arvensis*, *Alauda* sp.

Layer: 7

Date: LP

Fauna: *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Charadrius* sp., *Alauda arvensis*, *Pyrrhocorax graculus*, *Montifringilla nivalis*

Layer: below the abri at the foot of the cliff

Date: LP ?-Hol ? Tardenoisien

Fauna: *Anas* sp., *Lagopus* sp., *Picidae*

Det.: Soergel

BRD 39 Gaisloch bei Münzinghof (Bayern)

Type: c

Source: Brunner 1950

Layer: Fundstelle 2

Date: MP (MP ?)

Fauna: *Lagopus lagopus*

Det.: Brunner

BRD 40 Geissenklösterle (Baden-Württemberg)

Alt.: 590

Type: c

Sources: Müller-Beck et al. 1985; Weniger 1982

Date: LP Gravettian

Fauna: *Aquila* sp.

Date: LP Magdalenian

Fauna: *Lagopus* sp.

Layer: Io

Date: LP Early Magdalenian

Fauna: *Anas platyrhynchos*, *Tetrao tetrix*, *Lagopus mutus*, *Lagopus lagopus*, *Perdix perdix*, *Rallus aquaticus*, *Glaucidium passerinum*, *Hirundo rustica*, *Cinclus cinclus*, *Turdus viscivorus*

Det.: Mourer-Chauviré

BRD 41 Gleina (Thüringen)

Source: Andree 1939

Date: LP LG ?

Fauna: *Perdix perdix*, *Tetrao tetrix*

BRD 42 Grevenhof, Lüneburger Heide Niedersachsen)

Type: o

Source: Dewall 1928

Date: MP ? IS 5, 7 or 9 ?

Fauna: *Podiceps grisegena*

Det.: Hilzheimer

BRD 43 Grosse Parkhöhle, Weimar (Thüringen)

Type: o

Source: Heinrich 1984

Date: LP ? TL "Parktravertin" 115 ± 19 , 118 ± 12 , 151 ± 15 KA BP

Fauna: *Accipiter nisus*

Det.: Heinrich

BRD 44 Grosse Rohrloch (Bayern)

Type: c

Source: Brunner 1942a

Date: LP

Fauna: *Lagopus* sp., *Pica pica*, *Hirundo rustica*

BRD 45 Grubenloch bei Oberklausen (Bayern)

Type: c

Source: Brunner 1936a

Date: LP ?

Fauna: *Tetrao tetrix*, *Strix* sp., *Turdus* sp., *Pica pica*, *Corvus monedula*, *Fringilla* sp.

Det.: Brunner

Notes: most birds from "Gelber Sand" layer

BRD 46 Gräfentonna (Thüringen)

Source: Lambrecht 1933 (Soergel 1913)

Date: ?

Fauna: *Anas* sp.

Det.: Soergel

BRD 47 Grosse Ofnet (Bayern)

Type: c

Sources: Koken 1912; Lambrecht 1933; Nehring 1880; Wolf 1938–41 (Fraas 1876)

Layer: VI

Date: LP LG Late Magdalenian

Fauna: *Lagopus lagopus*

Layer: unstratified

Date: LP LG

Fauna: *Anser* sp., *Anas platyrhynchos*

Det.: Fraas

BRD 48 Guckerloch bei Michelfeld (Bayern)

Alt.: 418

Type: c

Source: Brunner 1958b

Layer: Nisch b

Date: LP

Fauna: *Scolopax rusticola*

Layer: 1–2

Date: LP

Fauna: *Lagopus* sp.

Det.: Brunner

BRD 49 Günterthaler Loch bei Velden (Bayern)

Type: c

Source: Brunner 1949

Layer: I,II,XII

Date: LP LG?

Fauna: *Lagopus* sp.

Det.: Brunner

BRD 50 Gönnersdorf (Rheinland-Pfalz)

Alt.: 97

Type: c

Sources: Arts & Deeben 1987; Brunnacker et al. 1978

Date: LP LG Magdalenian VI End Bölling, 14C=12,380–12,910 BP

Fauna: *Cygnus* sp., *Anser* sp., *Lagopus* sp., (*Grus grus*), *Larus* sp.?, *Nyctea scandiaca*,
Corvus corax

Notes: species in parenthesis are represented in art

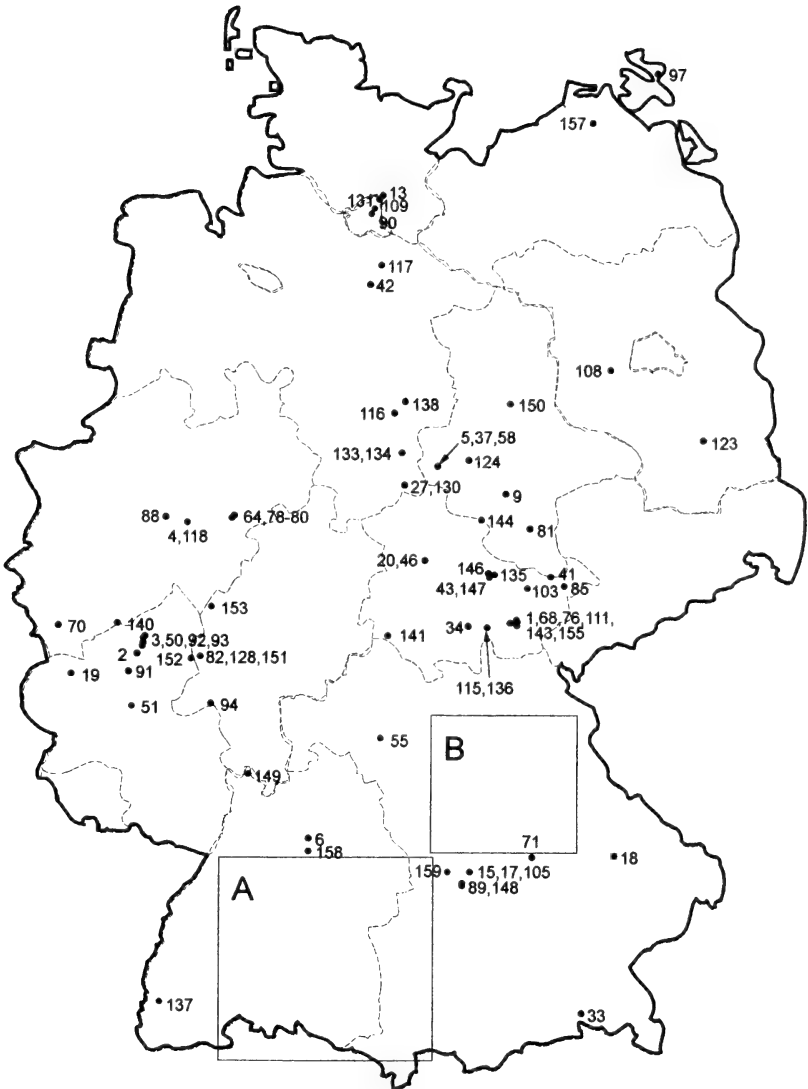
BRD 51 Hanseles Hohl (Rheinland-Pfalz)

Type: c

Source: Andree 1939

Date: LP LG?

Fauna: *Lagopus lagopus*, *Tetrao urogallus*, *Turdus pilaris*



GERMANY (BRD)

[See pp. 230, 240 for enlarged sections A and B.]

BRD 52 Hasenloch (Bayern)

Type: c

Sources: Wolf 1938–41; Birkner 1931

Date: LP Mousterian - Holocene

Fauna: *Perdix perdix*, *Gallus gallus*, *Columba* sp., *Fringilla montifringilla*

Det.: Nehring; Schlosser

Notes: layers mixed.

BRD 53 Heidenschmiede (Baden-Württemberg)

Type: c

Sources: Wolf 1938–41; Andree 1939 (Peters 1931)

Date: LP Mousterian and Magdalenian

Fauna: *Anser fabalis*, *Anas platyrhynchos*, *Lagopus lagopus*, *Philomachus pugnax*,
Larus argentatus ?, *Bubo bubo*, *Corvus monedula*

Notes: Stratification disturbed

BRD 54 Heidenstein (Baden-Württemberg)

Type: c

Sources: Andree 1939; Birkner 1933

Layer: 2

Date: LP LG Magdalenian

Fauna: *Turdus* sp.

Det.: Schlosser

BRD 55 Heigelsbachtal (Bayern)

Type: o

Sources: Lambrecht 1933; Nehring 1880

Date: LP ?

Fauna: *Tetrao tetrix*, *Anas* sp.

Det.: Nehring

Notes: also known as Löss bei Würzburg

BRD 56 Heinrichgrotte bei Burggailenreuth (Bayern)

Type: c

Source: Brunner 1953b

Layer: 1–3, 5–12

Date: LP?

Fauna: *Lagopus* sp.

Det.: Brunner

BRD 57 Helmloch bei Etzelwang (Bayern)

Type: c

Source: Brunner 1940

Layer: unstratified

Date: MP/LP

Fauna: *Anser anser*, *Lagopus* sp., *Nucifraga caryocatactes*, *Coccothraustes coccothraustes*

Det.: Brunner

Notes: MP and LP layers mixed by water action

BRD 58 Hermannshöhle bei Rübeland (Sachsen-Anhalt)

Type: c

Sources: Blasius 1901; Koken 1912; Lambrecht 1933; Wolf 1938–41 (Blasius 1898, Kloos & Müller 1889)

Date: LP

Fauna: *Gavia* sp., *Anas* sp., *Aegypius monachus*, *Lagopus lagopus*, *Tetrao tetrix*, *Corvus corax*

BRD 59 Hirtenweberhöhle bei Neukirchen (Bayern)

Type: c

Source: Brunner 1939

Layer: 1

Date: LP

Fauna: *Hirundo rustica*

Layer: 2

Date: LP

Fauna: *Tetrao tetrix*, *Lagopus lagopus*, *Charadrius* sp., *Picus* sp., *Turdus* sp.

Layer: 3

Date: LP

Fauna: *Tetrao tetrix*, *Lagopus lagopus*, *Hirundo rustica*, *Turdus* sp.

Det.: Brunner

BRD 60 Hoeschhöhle (Bayern)

Type: c

Sources: Nehring 1880; Wolf 1938–41

Date: LP ?

Fauna: *Anas* sp., *Lagopus lagopus*, *Tetrao tetrix*, *Tetrao urogallus*, *Scolopax rusticola*, *Turdus* sp.

Det.: Nehring

Notes: also known as Hoesch's Höhle; *Hystrix* present, hence probably early Würmian

BRD 61 Hohlefels bei Hütten (Baden-Württemberg)

Type: c

Sources: Koken 1912; Wolf 1938–41 (Koken 1909; Schmidt 1910)

Layer: 1–2 (=4–5)

Date: LP LG Magdalenian

Fauna: *Lagopus lagopus*

Notes: 1=Spät-Magdalenian 2=Hoch-Magdalenian (=Graue & Gelbe Schicht)

BRD 62 Hohler Fels bei Happurg (Bayern)

Alt.: 566

Type: c

Sources: Andree 1939; Lambrecht 1933; Musil 1980b; Wolf 1938–41 (Hörmann 1913)

Date: LP Late Acheulean-Magdalenian

Fauna: *Anser anser*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Gallus gallus*, *Nyctea scandiaca*, *Corvus* sp., *Fringillidae* sp.,

Notes: birds perhaps mainly Magdalenian ?

BRD 63 Hohler Fels bei Schelklingen (Baden-Württemberg)

Alt.: 540

Type: c

Sources: Koken 1912; Lambrecht 1933; Nehring 1880; Wolf 1938–41 (Fraas 1872, 1877)

Date: LP UP

Fauna: *Ardea cinerea*, *Cygnus cygnus*, *Anser anser*, *Anas platyrhynchos*, *Aythya fuligula*, *Corvus monedula*, *Pyrrhula pyrrhula*

Det.: Fraas ?

Notes: in a recent dig only Gravettian and Magdalenian found; also known as Hohlefels im Aichtal; *Aythya nyroca* mentioned by Lambrecht; Magdalenian 14C-dated to $12,770 \pm 110$ and $13,085 \pm 95$ BP, Magdalenian/Gravettian dated to $15,760 \pm 140$ BP

BRD 64 Hohler Stein bei Callenhardt (Nordrhein-Westfalen)

Type: c

Sources: Andree 1931; Dewez 1974; Lambrecht 1933; Wolf 1938–41

Date: LP LG Late Magdalenian/Mesolithic

Fauna: *Lagopus mutus*

Notes: Ahrensburgian, according to Dewez.

BRD 65 Hohlestein im Lonetal (Baden-Württemberg)

Type: c

Source: Lambrecht 1933

Date: LP

Fauna: *Perdix perdix*

Notes: is same site as either Hohlenstein-Stadel or Hohlenstein Bärenhöhle

BRD 66 Hunas (Bayern)

Alt.: 500

Type: c

Source: Jánossy 1983b

Layer: D

Date: LP "Übergang R/W-Würm"

Fauna: *Tetrao tetrix*

Layer: F

Date: MP/LP "Übergang Riss-R/W"

Fauna: *Tetrao tetrix*, *Hirundo rustica*, *Perisoreus* sp. ?

Layer: G1

Date: MP "Riss Spätglazial"

Fauna: *Anas platyrhynchos*, *Anas acuta*, *Anas penelope*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Otis tarda*, *Crex crex*, *Surnia ulula*, *Dendrocopos major*, *Eremophila alpestris*, *Anthus spinoletta*, *Hirundo rustica*, *Cinclus cinclus*, *Turdus cf. torquatus*, *Corvus cf. frugilegus*

Layer: G2

Date: MP Riss "Hochglazial?"

Fauna: *Anas querquedula*, *Aythya nyroca*, *Bucephala clangula* ?, *Mergus cf. serrator*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Crex crex*, *Asio flammeus*, *Aegolius funereus*, *Surnia ulula*, *Nyctea scandiaca*, *Hirundo rustica*, *Corvus monedula*, *Cinclus cinclus*, *Phoenicurus cf. phoenicurus*, *Turdus cf. torquatus*, *Sylviidae sp.*, *Corvus corax*, *Corvus cf. frugilegus*, *Pyrrhocorax graculus*

Layer: G3

Date: MP Riss "Hochglazial?"

Fauna: *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Porzana porzana*, *Gallinago cf. media*, *Asio flammeus*, *Hirundo rustica*, *Turdus cf. torquatus*, *Pyrrhocorax graculus*, *Garrulus glandarius*

Layer: H

Date: MP Riss "Hochglazial?"

Fauna: *Tetrao tetrix*, *Lagopus lagopus*, *Perdix perdix*, *Aegolius funereus*, *Hirundo rustica*, *Muscicapa cf. albicollis*, *Pyrrhocorax graculus*

Layer: J

Date: MP Riss "Hochglazial?"

Fauna: *Lagopus lagopus*, *Asio flammeus*, *Hirundo rustica*, *Parus cf. palustris*

Layer: K

Date: MP Riss "Frühglazial?"

Fauna: *Aythya nyroca*, *Tetrao tetrix*, *Lagopus lagopus*, *Perdix perdix*, *Charadrius aff. morinellus*, *Asio flammeus*, *Dendrocopos major*, *Hirundo rustica*, *Pyrrhocorax graculus*, aff. *Pyrrhula sp.*

Layer: L

Date: MP Riss "Frühglazial?"

Fauna: *Tetrao tetrix*, *Perdix perdix*, *Crex crex*, *Hirundo rustica*

Det.: Jánosy

BRD 67 Höhle im Velburger Schlossberg (Bayern)

Type: c

Sources: Lambrecht 1933; Schlosser 1897; Wolf 1938–41 (Schlosser 1899b)

Date: LP

Fauna: *Lagopus mutus*

Det.: Schlosser

BRD 68 Ilsenhöhle bei Ranis (Thüringen)

Alt.: 390

Type: c

Sources: Andree 1939; Fischer & Mauersberger 1989; Musil 1980b

Layer: V

Date: LP LG

Fauna: *Lagopus* sp., *Lagopus lagopus*

Layer: ?

Date: LP

Fauna: *Phasianus* sp.

Stored: Museum für Naturkunde, der Humboldt-Universität zu Berlin

Notes: layer V is a "cold" layer probably between Gravettian (Ranis 4) and Late Magdalenian (Ranis 5) cultures; this is a very interesting and significant site and it is unfortunate that the avifauna has never been properly studied.

BRD 69 Irpfelhöhle (Baden-Württemberg)

Type: c

Sources: Andree 1939; Musil 1980b; Wolf 1938–41 (Berckhemer & Peters 1935)

Date: LP Mousterian

Fauna: *Lagopus lagopus*, *Anas acuta*, *Anser anser*

BRD 70 Kartstein (Nordrhein-Westfalen)

Alt.: 400

Type: c

Sources: Baales 1989, 1992, in press; Koken 1912; Wolf 1938–41 (Rademacher 1911)

Layer: D I

Date: LP LG Magdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Layer: unstratified

Date: LP

Fauna: *Lagopus mutus*

Date: LP LG Dryas 3, Ahrensburgian 14C=10,090±100 BP

Fauna: *Aythya fuligula*, *Tetrao urogallus*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Crex crex*, *Aquila clanga/pomarina*, *Falco tinnunculus*, *Falco rusticolus*, *Scolopax rusticola*, *Columba palumbus*, *Bubo bubo*, *Asio flammeus*, *Turdus pilaris*, *Pica pica*, *Corvus monedula*, *Loxia curvirostra*, *Coccothraustes coccothraustes*, *Fringilla* sp., *Carduelis* cf. *flammea* ?

Det.: Peters (only the Ahrensburgian fauna)

Notes: 14C determination was done on *Lagopus lagopus* bone.

BRD 71 Kastlhänghöhle (Bayern)

Alt.: 412

Type: c

Sources: Andree 1939; Koken 1912; Lambrecht 1933; Wolf 1938–41 (Frauenholz, Obermaier & Schlosser 1911, Schlosser 1899b)

Layer: IV "Obere Nagerschicht"

Date: LP LG

Fauna: *Accipiter nisus*, *Turdus* sp., *Turdus merula*, *Corvus* sp.

Layer: V "Kulturschicht"

Date: LP LG Magdalenian

Fauna: *Falco* sp., *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Bubo bubo*, Corvidae

BRD 72 Kleine Scheuer am Rosenstein (Baden-Württemberg)

Type: c

Sources: Andree 1939; Wolf 1938–41 (Maier 1936)

Layer: 1–2

Date: LP Magdalenian?

Fauna: *Anser fabalis*

Layer: 3–4

Date: LP Aurignacian ?

Fauna: *Lagopus mutus*

BRD 73 Kleine Scheuer im Lonetal (Baden-Württemberg)

Type: c

Sources: Hölzinger 1988; Koken 1912; Lambrecht 1933; Wolf 1938–41 (Koken 1909)

Layer: 1

Date: LP LG Magdalenian

Fauna: *Anas crecca*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Oenanthe oenanthe*, *Corvus corax*

Layer: 2

Date: LP LG Magdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Layer: 3

Date: LP LG Magdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*

Layer: 4

Date: LP LG Magdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Alauda arvensis*

Layer: 5

Date: LP LG Magdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Layer: 6

Date: LP LG Magdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Layer: 7

Date: LP Magdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*

Layer: 8

Date: LP Magdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*

Layer: 9

Date: LP Magdalenian

Fauna: *Aquila* sp., *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*

Layer: 10

Date: LP LG Magdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Layer: 11

Date: LP LG Magdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Layer: 12

Date: LP LG Magdalenian

Fauna: *Lagopus mutus*

Layer: 14

Date: LP LG Magdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Layer: IV

Date: LP LG 14C=13,245±100 BP (lower part)

Fauna: *Anas crecca*, *Anas platyrhynchos*, *Anas acuta*, *Anas querquedula*, *Anas clypeata*, *Netta rufina*, *Mergus albellus*, *Buteo lagopus*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Crex crex*, *Gallinula chloropus*, *Fulica atra*, *Charadrius morinellus*, *Pluvialis apricaria*, *Vanellus vanellus*, *Calidris minuta*, *Calidris alpina*, *Lymnocyrtus minimus*, *Gallinago gallinago*, *Scolopax rusticola*, *Tringa totanus*, *Arenaria interpres*, *Hirundo rustica*, *Nyctea scandiaca*, *Asio flammeus*, *Aegolius funereus*, *Picus viridis*, *Galerida cristata*, *Alauda arvensis*, *Eremophila alpestris*, *Anthus pratensis*, *Motacilla alba*, *Phoenicurus phoenicurus*, *Oenanthe oenanthe*, *Turdus merula*, *Turdus pilaris*, *Turdus iliacus*, *Turdus viscivorus*, *Corvus monedula*, *Loxia curvirostra*, *Coccothraustes coccothraustes*, *Plectrophenax nivalis*, *Emberiza citrinella*

Det.: Hölzinger (Layer IV), Koken (other layers)

BRD 74 Kleine Teufelshöhle bei Pottenstein (Bayern)

Type: c

Source: Brunner 1951a

Layer: A,B,C

Date: LP-MP ?

Fauna: *Lagopus* sp.

Layer: unstratified

Date: LP?

Fauna: *Coccothraustes* sp.

Det.: Brunner

BRD 75 Kleine Ofnet (Bayern)

Type: c

Source: Andree 1939

Layer: 2

Date: LP Aurignacian

Fauna: *Tetrao tetrix*

BRD 76 Kniegrotte (Thüringen)

Type: c

Source: Musil 1974

Layer: VIII upper

Date: LP LG Magdalenian Dryas 2–Alleröd ?

Fauna: *Falco* cf. *tinnunculus*, *Lagopus* sp., *Corvus corax*

Layer: “XIV” (probably = VII–VIII)

Date: LP LG Magdalenian Dryas 2–Alleröd ?

Fauna: *Aythya marila*, *Lagopus* sp., *Garrulus glandarius*, *Corvus corax*

Layer: VIII mitt.

Date: LP LG Magdalenian Dryas 2–Alleröd ?

Fauna: *Anser* sp., *Melanitta nigra*, *Buteo lagopus*, *Falco vespertinus/tinnunculus*,
Tetrao tetrix, *Lagopus* sp., *Tringa nebularia*, *Corvus corax*, *Garrulus glandarius*

Layer: VIII unt.

Date: LP LG Magdalenian Dryas 2–Alleröd ?

Fauna: *Corvus corax*

Det.: Musil

Notes: oldest Magdalenian at this site may be as early as Magdalenian III.

BRD 77 Kreuzgrotte bei Pottenstein (Bayern)

Type: c

Source: Brunner 1941

Date: MP ?

Fauna: *Lagopus* sp., *Bubo bubo*, *Hirundo rustica*

Det.: Brunner

BRD 78 Kulturhöhle I, Bilstein (Nordrhein-Westfalen)

Type: c

Sources: Andree 1927, 1939; Wolf 1938–41 (Carthaus 1890)

Date: LP LG Magdalenian

Fauna: *Anas* sp., *Lagopus lagopus*, *Tetrao tetrix*

Notes: also known as Bilsteinhöhle

BRD 79 Kulturhöhle II, Bilstein (Nordrhein-Westfalen)

Type: c

Sources: Wolf 1938–41 (Carthaus 1890)

Date: LP

Fauna: *Anas* sp., *Lagopus lagopus*

BRD 80 Kulturhöhle III, Bilstein (Nordrhein-Westfalen)

Type: c

Source: Wolf 1938–41 (Carthaus 1890)

Date: LP

Fauna: *Lagopus lagopus*

BRD 81 Körbisdorf/Geiseltal (Sachsen-Anhalt)

Source: Fischer & Mauersberger 1989

Date: MP

Fauna: *Gyps bengalensis*

Stored: Museum für Naturkunde der Humboldt-Universität zu Berlin

BRD 82 Lahntal (Hessen)

Sources: Lambrecht 1933; Lydekker 1891a; Milne-Edwards 1867–71, 1875a,b
(Giebel 1847)

Date: ?

Fauna: *Anas* sp., *Anas platyrhynchos*, *Gallus* sp., *Phasianus* sp., *Turdus* sp., *Corvus* sp.

Stored: British Museum (Natural History)

Det: von Meyer; Lydekker

Notes: probably at least partly the same site as BRD 128.

BRD 83 Langenaubach ()

Source: Lambrecht 1933 (Behlen 1906)

Date: ?

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Lagopus* sp., *Turdus* sp., *Corvus* sp., *Pyrrhocorax graculus*, *Fringilla* sp.

BRD 84 Langenbrunn an der Donau (Baden-Württemberg)

Type: o

Sources: Lambrecht 1933; Nehring 1880

Date: LP ?

Fauna: *Perdix perdix*, *Cygnus* sp.

Det.: Nehring

Notes: near Sigmaringen

BRD 85 Lindenthaler Hyänenhöhle (Thüringen)

Alt.: 210

Type: c

Sources: Lambrecht 1933; Nehring 1880; Wolf 1938–41 (Auerbach 1929, Liebe 1875, 1876)

Date: LP ?

Fauna: *Pandion haliaetus*, *Lagopus lagopus*?, *Tetrao tetrix*, *Charadrius* sp.?,

Det.: Liebe

BRD 86 Malerfels I (Baden-Württemberg)

Alt.: 510

Type: c

Source: Mourer-Chauviré 1984c

Layer: 3

Date: MP/LP

Fauna: *Lagopus* sp., *Tetrao tetrix*, *Pica pica*

Det.: Mourer-Chauviré

Notes: rodents mostly LP/LG with some admixture of MP forms

BRD 87 Markgrabenhöhle bei Pottenstein (Bayern)

Type: c

Source: Brunner 1952a

Layer: I

Date: MP EMP

Fauna: *Lagopus lagopus*

Det.: Brunner

BRD 88 Martinshöhle bei Lethmaten (Nordrhein-Westfalen)

Type: c

Source: Lambrecht 1933

Date: ?

Fauna: *Lagopus lagopus*, *Nyctea scandiaca*

Det.: Nehring

BRD 89 Mauer an der Elsenz (Bayern)

Type: o

Sources: Förster 1913; Lambrecht 1933; Würm 1913

Date: LP

Fauna: *Anser* sp., *Branta* sp., *Lagopus* sp., *Galerida cristata* ?

Det.: Schlosser

BRD 90 Meiendorf (Schleswig-Holstein)

Type: o

Sources: Andree 1939; Burdukiewicz 1986; Heinrich 1977 (Krause 1937, Krause & Kollau 1943)

Date: LP LG Hamburgian 14C=12,360±110, 12,460±60 BP Late Bölling

Fauna: *Cygnus* sp., *Anser* sp., *Branta leucopsis*, *Anas* sp., *Lagopus lagopus*, *Porzana porzana*, *Grus grus*, *Larus marinus/hyperboreus*

Det.: Krause; Kollau

BRD 91 Mertloch (Rheinland-Pfalz)

Type: o

Source: von Berg 1994

Date: LP Alleröd 11030 BP

Fauna: *Tetrao tetrix*?

Det.: Joachim; Rheinwald & Spittler

Notes: footprints in ash from the Laacher-See caldera eruption.

BRD 92 Michelberg bei Ochtendung (Rheinland-Pfalz)

Alt.: 277

Type: c

Source: Boecker et al. 1973

Date: LP LG Alleröd 14C=10,800±100 BP

Fauna: *Bucephala clangula*, *Tetrao tetrix*, *Perdix perdix*, *Coturnix coturnix*, *Scolopax rusticola*, *Motacilla* sp. ?

Det.: Lepiksaar, Boecker

Notes: 14C dates are too low; finds are below Laacher-See horizon (ca. 11,030 BP)

BRD 93 Miesenheim 2 (Rheinland-Pfalz)

Type: o

Source: Street *in litt.*

Date: LP LG Late Alleröd 14C=10,820–11,460 BP

Fauna: *Lagopus* sp.?, *Tetrao tetrix* ?

Det.: Street

BRD 94 Mosbach (Hessen)

Type: o

Sources: Lambrecht 1933; Mourer-Chauviré 1977a; Vaufrey 1931a (Schmidtgen 1927)

Layer: III ?

Date: MP "Mindel"

Fauna: cf. *Cygnus cygnus*, *Anas platyrhynchos*, *Anas* cf. *acuta*, *Cyps* cf. *melitensis*

Layer: "Jungdiluviale Sandlöss"

Date: LP ?

Fauna: *Tadorna ferruginea*

Det.: Mourer-Chauviré (only Layer III)

Notes: an almost complete egg of "Eider *Casarca casarca*" !

BRD 95 Nankendorfer Höhle ()

Type: c

Source: Fischer & Mauersberger 1989

Date: LP

Fauna: *Strix aluco*

Stored: Museum für Naturkunde der Humboldt-Universität zu Berlin

BRD 96 Nedden-Averbergen ()

Source: Fischer & Mauersberger 1989

Date: LP

Fauna: *Gavia arctica*

Stored: Museum für Naturkunde der Humboldt-Universität zu Berlin

BRD 97 Neu-Mukran (Mecklenburg-Vorpommern)

Type: o

Sources: Heinrich 1977; Müller & Stephan 1977

Date: LP LG Alleröd-Dryas 3 ?

Fauna: *Lagopus lagopus*

Notes: most probably Dryas 3

BRD 98 Niedernau (Baden-Württemberg)

Type: c

Sources: Andree 1939; Koken 1912

Date: LP LG Magdalenian

Fauna: *Corvus corax*, *Tetrao tetrix*

Det.: Koken ?

Notes: also known as Napoleonskopf

BRD 99 Nikolaushöhle (Baden-Württemberg)

Type: c

Sources: Götz 1946; Heller 1936

Date: LP LG Magdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Nucifraga* sp.?

Det.: Götz; Heller

Notes: *Nucifraga* sp. determined by Heller**BRD 100 Nische bei St. Wolfgang (Bayern)**

Type: c

Sources: Lambrecht 1933; Schlosser 1896; Wolf 1938–41 (Schlosser 1899b)

Date: LP

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Turdus* spp.,
Corvus sp., *Corvus monedula*, Fringillidae spp.

Det.: Schlosser

Notes: also known as Höhle von St. Coloman

BRD 101 Nische im Velburger Schlossberg (Bayern)

Type: c

Sources: Lambrecht 1933; Schlosser 1897; Wolf 1938–41 (Schlosser 1899b)

Date: LP-Hol

Fauna: *Falco* sp., *Lagopus mutus*, *Tetrao tetrix*, *Dendrocopos medius*, *Turdus* spp.,
Fringillidae spp., *Corvus monedula*, *Corvus* sp.

Det.: Schlosser

BRD 102 Oberschwaben ()

Source: Lambrecht 1933 (Probst 1881)

Date: ?

Fauna: *Cygnus cygnus*, *Anser* sp., *Anas* sp.**BRD 103 Oelknitz (Thüringen)**

Type: c

Source: Musil 1985

Date: LP LG Magdalenian 14C=10,940–12,545 BP

Fauna: *Lagopus* sp., *Bonasa* cf. *bonasia*, *Corvus corax*

Det.: Musil

BRD 104 Ofnet (Bayern)

Source: Lambrecht 1933

Date: ?

Fauna: *Turdus* sp.

Notes: presumably identical with either BRD 47 or BRD 76

BRD 105 Petersbuch bei Eichstätt (Bayern)

Type: c

Source: von Koenigswald 1970

Date: MP "Tarkö-phase der Jungbiharium bis Holstein-Interglazial" or "Holstein"

Fauna: *Lagopus* sp.

Det.: Jánossy

BRD 106 Petersfels (Baden-Württemberg)

Type: c

Sources: Andree 1939; Mourer-Chauviré 1983c; Toepfer 1963; Wolf 1938–41
(Peters 1930; Peters & Toepfer 1932)

Layer: Nagerschicht (= 5)

Date: LP LG Magdalenian

Fauna: *Turdus* sp., *Turdus viscivorus*, *Garrulus glandarius*

Layer: unstratified

Date: LP LG Magdalenian

Fauna: *Gavia stellata*, *Anas clypeata*, *Aythya fuligula*, *Buteo buteo*, *Lagopus lagopus*,
Philomachus pugnax, *Grus grus*, *Corvus corone*, *Pyrhcorax graculus*

Layer: Kulturschicht (=4)

Date: LP LG Magdalenian

Fauna: *Cygnus cygnus*, *Anser* sp., *Anas* sp., *Aquila chrysaetos*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Perdix perdix*, *Turdus philomelos*, *Turdus pilaris*, *Corvus monedula*, *Corvus corax*

Layer: ?

Date: LP LG Magdalenian

Fauna: *Gavia stellata*, *Anser* sp., *Anas platyrhynchos*, *Anas clypeata*, *Anas acuta*, *Aythya fuligula*, *Cygnus cygnus*, *Buteo buteo*, *Aquila rapax*, *Haliaeetus albicilla*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Lymnocyptes minimus*, *Philomachus pugnax*, *Haematopus ostralegus*, *Grus grus*, *Turdus viscivorus*, *Corvus corax*, *Corvus corone*, *Pyrhcorax graculus*

Layer: P3 AH5

Date: LP LG Magdalenian

Fauna: *Lagopus* sp.

Layer: P3 AH4

Date: LP LG Magdalenian 14C=11,890±130 BP

Fauna: *Lagopus* sp.

Layer: P1 AH2

Date: LP LG Magdalenian 14C=11,975±100, 12,120±100 BP

Fauna: *Lagopus* sp.

Layer: P1 AH3

Date: LP LG Magdalenian 14C=12,160–12,685 BP (14 dates)

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Eremophila alpestris*

Layer: P1 AH4

Date: LP LG Magdalenian 14C=12,630–13,110 BP (6 dates)

Fauna: *Lagopus mutus*, *Lagopus* sp., *Stercorarius longicaudus*

Det.: Mourer-Chauviré (P1, P3); Mandach; Soergel (others)

BRD 107 Petershöhle (Bayern)

Alt.: 491

Type: c

Sources: Hörman 1923, 1933; Lambrecht 1933; Schlosser 1926b; Wolf 1938–41

Layer: 1

Date: LP

Fauna: *Tetrao tetrix*, *Perdix perdix*, *Gallus gallus*

Layer: 2 ("Mittlere Schicht")

Date: LP Mousterian or younger

Fauna: *Anser anser*, *Lagopus* sp.?, *Tetrao tetrix*, *Perdix perdix*, *Gallus gallus*, *Corvus* sp.,
Corvus monedula

Layer: 3

Date: LP Mousterian or younger

Fauna: *Anser anser*, *Gallus gallus*

Det.: Schlosser

BRD 108 Phoebe (Brandenburg)

Source: Fischer & Mauersberger 1989

Date: LP Eem ?

Fauna: *Cygnus* sp., *Anser anser*, *Mergus* sp.

Stored: Museum für Naturkunde der Humboldt-Universität zu Berlin

BRD 109 Poggenwisch (Schleswig-Holstein)

Type: o

Sources: Burdukiewicz 1986; Herre & Requate 1958

Date: LP LG Hamburgian 14C=12,440–12,570 BP

Fauna: *Lagopus* sp., *Cygnus* cf. *olor*

Notes: 14C datings from this Locality doubtful

BRD 110 Probstfels (Baden-Württemberg)

Type: c

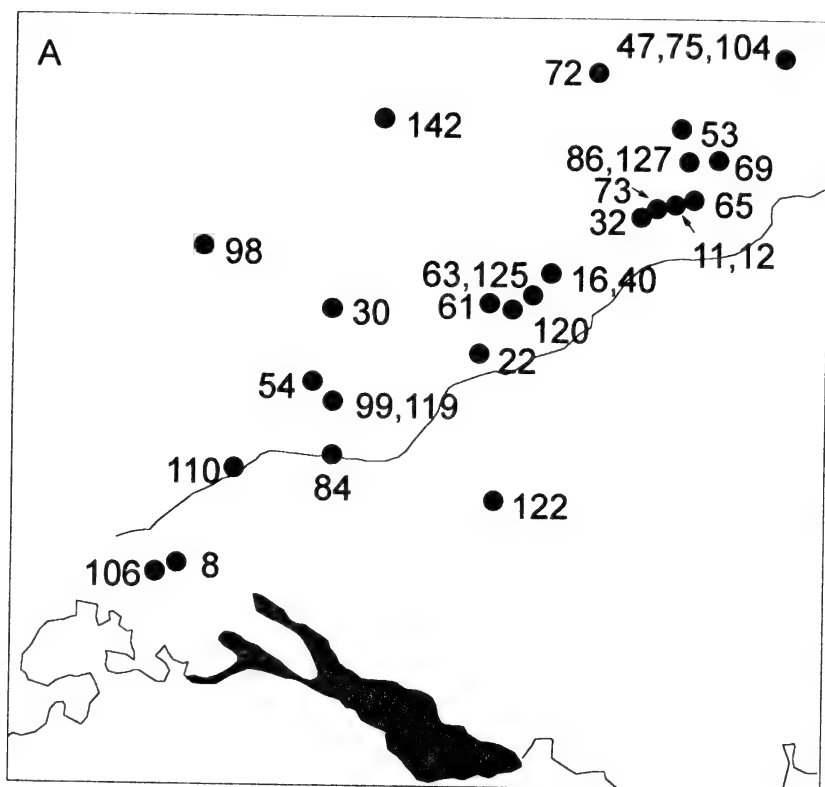
Sources: Andree 1939; Koken 1912; Lambrecht 1933; Wolf 1938–41 (Koken 1909)

Layer: 2, 3, 5

Date: LP LG Late Magdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Corvus corax*

Det.: Koken



GERMANY (BRD)

BRD 111 Pössneck (Thüringen)

Source: Lambrecht 1933 (Richter 1879; Nehring 1889a)

Date: ?

Fauna: *Tetrao tetrix*, *Lagopus lagopus*, *Gallus* sp., *Hirundo rustica***BRD 112 Quellkammer bei Pottenstein (Bayern)**

Type: c

Source: Brunner 1951b

Date: LP LG?

Fauna: *Lagopus* sp.

Det.: Brunner

BRD 113 Raugrotte (Bayern)

Type: c

Sources: Lambrecht 1933; Wolf 1938–41 (Heller 1932)

Layer: "Dicrostonyxschicht"

Date: LP

Fauna: *Anas acuta*, *Anas platyrhynchos*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Tringa* sp., *Turdus torquatus*

BRD 114 Reichentalloch bei Hirschbach (Bayern)

Alt.: 400

Type: c

Source: Brunner 1959a

Date: LP LG ?

Fauna: *Lagopus mutus*, *Luscinia* sp., *Turdus pilaris*, *Certhia* sp.

Det.: Soergel

BRD 115 Roter Berg bei Saalfeld (Thüringen)

Alt.: 415

Type: o

Sources: Fischer & Mauersberger 1989; Lambrecht 1933; Nehring 1880; Stehlin & Graziosi 1935 (Richter 1879)

Date: LP probably early Weichsel (IS 5a-d ?)

Fauna: *Anser* sp., *Anas* cf. *platyrhynchos*, *Anas* sp., *Aquila chrysaetos*, *Tetrao urogallus*, *Tetrao tetrix*, *Lagopus lagopus*, *Perdix perdix*, *Coturnix coturnix*, *Gallus* sp., *Strix* sp., *Hirundo rustica*, *Corvus* cf. *corone*

Det.: Richter; Nehring

Fauna: *Anas platyrhynchos*, *Aythya* sp. ?, *Buteo* sp., *Tetrao urogallus*, *Tetrao tetrix*, *Lagopus lagopus*, *Perdix perdix*, *Coturnix coturnix*, *Otis tarda*, *Columba palumbus*, *Dendrocopos major*, *Picus viridis*, *Asio* sp., *Turdus* cf. *viscivorus*, *Turdus* cf. *pilaris*

Det.: Stehlin

Stored: Gera Museum (partly)

Fauna: *Anas platyrhynchos*, *Somateria spectabilis*, *Melanitta fusca*, *Bucephala clangula*, *Mergus albellus*, *Aegypius monachus*, *Falco peregrinus*, *Coturnix coturnix*, *Lagopus lagopus*, *Tetrao tetrix*, *Tetrao urogallus*, *Bonasa bonasia*, *Crex crex*, *Rallus aquaticus*, *Scolopax rusticola*, *Columba* cf. *palumbus*

Det.: ?

Stored: Museum für Naturkunde der Humboldt-Universität zu Berlin

Notes: also known as Fuchslöcher; dating based on presence of *Cyrtus* and *Hystrix*

BRD 116 Salzgitter-Lebenstedt (Niedersachsen)

Alt.: 76

Type: o

Sources: Kleinschmidt 1953a,b

Date: LP Early Weichselian 14C=55,600±900 BP

Fauna: *Cygnus* sp., *Anas* sp., *Torgus tracheliotus todei*

Det: Kleinschmidt

Stored: Landesmuseum Braunschweig

Notes: 14C minimum age only; dating doubtful; might well be from the penultimate glaciation

BRD 117 Salzhausen (Niedersachsen)

Type: o

Source: Lambrecht 1933

Date: ?

Fauna: *Lagopus* sp.

Det.: Lambrecht

BRD 118 Sanssouci/Hönnetal (Nordrhein-Westfalen)

Source: Fischer & Mauersberger 1989

Date: LP

Fauna: *Anser anser*, *Anas platyrhynchos*, *Coturnix coturnix*, *Phasianus* cf. *colchicus*, *Lagopus mutus*

Stored: Museum für Naturkunde der Humboldt-Universität zu Berlin

BRD 119 Schafstallhöhle (Baden-Württemberg)

Type: c

Source: Götz 1946

Date: LP Mousterian "Würm I, kaltes Mousterian"

Fauna: *Anas platyrhynchos*, *Anas crecca/querquedula*, *Bucephala clangula*, *Mergus merganser*, *Haliaeetus albicilla*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Perdix perdix*, *Tringa totanus*, *Gallinago gallinago/media*, *Scolopax rusticola* Numenius cf. *phaeopus*, *Apus apus*, *Bubo bubo*, *Asio* sp., *Dendrocopos major*, *Melanocorypha* cf. *leucoptera*, *Hirundo rustre*, *Cinclus cinclus*, *Turdus viscivorus*, *Turdus philomelos*, *Turdus torquatus*, *Parus caeruleus*, *Pica pica*, *Nucifraga caryocatactes*, *Pyrrhocorax graculus*, *Montifringilla nivalis*

Det.: Götz

BRD 120 Schmiechenfels (Baden-Württemberg)

Type: c

Sources: Koken 1912; Lambrecht 1933

Layer: V

Date: LP Magdalenian

Fauna: *Anas* sp., *Lagopus lagopus*, *Lagopus mutus*

Layer: IV

Date: LP Magdalenian

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Perdix perdix*, *Tetrao tetrix*

Layer: III

Date: LP Magdalenian

Fauna: *Anas* sp., *Lagopus lagopus*, *Lagopus mutus*

Layer: II

Date: LP Magdalenian

Fauna: *Anas platyrhynchos*

Layer: I

Date: LP LG Magdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Det.: Koken

BRD 121 Schmiedberg-Abri bei Hirschbach (Bayern)

Alt.: 430

Type: c

Source: Brunner 1959b

Date: LP

Fauna: *Anas platyrhynchos*, *Anas querquedula*, *Anas acuta*, *Aythya marila*, *Mergus serrator*, *Mergus merganser*, *Accipiter nisus*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Rallus aquaticus*, *Crex crex*, *Pluvialis apricaria*, *Scolopax rusticola*, *Dendrocopos minor*, *Alauda arvensis*, *Hirundo rustica*, *Cinclus cinclus*, *Turdus viscivorus*, *Turdus pilaris*, *Lanius excubitor*, *Oriolus oriolus*, *Corvus corax*, *Corvus monedula*, *Pyrhacorax graculus*, *Coccothraustes coccothraustes*, *Carduelis carduelis*, *Fringilla coelebs*, *Fringilla montifringilla*, *Montifringilla nivalis*

Det.: Soergel

BRD 122 Schussenquelle (Baden-Württemberg)

Type: o

Sources: Andree 1939; Koken 1912

Date: LP LG Magdalenian Dryas I ? 14C = 11,100–15,900 BP (4 dates).

Fauna: *Cygnus cygnus*, *Anas platyrhynchos*, *Aythya* sp.

Det.: Koken or Fraas ?

Notes: 14C dating doubtful; site may be of Bölling age (Hahn & Kind 1991)

BRD 123 Schönfeld (Brandenburg)

Type: o

Source: Fischer 1991

Layer: 3.1

Date: LP Eem

Fauna: *Ixobrychus minutus*, *Anas acuta*, *Aythya ferina* ?, *Bucephala clangula*, *Tringa ochropus* ?, *Turdus merula*, *Turdus philomelos*, *Erethacus rubecula*, *Prunella modularis* ?

Det.: Fischer

BRD 124 Seveckenberg bei Quedlinburg (Sachsen-Anhalt)

Type: c

Sources: Nehring 1880, 1905 (Giebel 1850)

Date: LP

Fauna: *Anser* sp., *Anas* cf. *platyrhynchos*, *Anas crecca*, *Lagopus* sp., *Otis* sp., *Larus* sp., *Hirundo rustica*, *Hirundo* sp., *Corvus* sp., *Fringilla* sp.

Det.: Giebel; Nehring

Notes: also known as Quenickenberg; some of the determinations by Giebel are questionable; *Hystrix* is present which may indicate early Würmian age

BRD 125 Sirgenstein (Baden-Württemberg)

Alt.: 565

Type: c

Sources: Koken 1912; Lambrecht 1933; Wolf 1938–41 (Schmidt 1910)

Layer: VII-VIII

Date: LP Mousterian

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Layer: Untere Nagerschicht (Between VI and VII)

Date: LP between Mousterian & Aurignacian

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Layer: V

Date: LP UP Aurignacian

Fauna: *Aquila* sp.

Layer: IV

Date: LP UP Aurignacian (Gravettian ?)

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Layer: II-III

Date: LP UP Gravettian (II), Aurignacian (III)

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Layer: Ib

Date: LP LG Spätmagdalenian

Fauna: *Anas* sp., *Lagopus lagopus*, *Lagopus mutus*

Layer: Ia

Date: LP LG Spätmagdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Det.: Koken

Notes: according to modern terminology, layer II is probably Gravettian and layer III Aurignacian (Hahn 1981); stratigraphy somewhat doubtful

BRD 126 Skythenloch (Bayern)

Type: c

Sources: Brunner 1942b; Jánossy & Schmidt 1970

Layer: Obere

Date: LP LG ?

Fauna: *Anas platyrhynchos*, *Anas* sp., *Anas querquedula*, *Anas acuta*, *Mergus merganser*, *Mergus serrator*, *Buteo* sp., *Falco rusticolus*, *Falco* sp., *Falco tinnunculus*, *Tetrao tetrix*, *Lagopus mutus*, *Lagopus lagopus*, *Rallus aquaticus*, *Crex crex*, *Charadrius* sp., *Scolopax rusticola*, *Scolopax* sp., *Columba palumbus*, *Columba livia*, *Columba* sp., *Bubo bubo*, *Surnia ulula*, *Turdus merula*, *Parus major*, *Garrulus glandarius*, *Coccothraustes coccothraustes*

Layer: Untere

Date: LP LG ?

Fauna: *Anas platyrhynchos*, *Anas querquedula*, *Buteo* sp., *Lagopus lagopus*, *Lagopus mutus*, *Charadrius* sp., *Pluvialis* sp., *Scolopax* sp., *Stercorarius* sp., *Sterna* sp., *Columba palumbus*, *Apus apus*, *Bubo bubo*, *Coccothraustes coccothraustes*
 Det.: Soergel

BRD 127 Spitzbubenhöhle (Baden-Württemberg)

Alt.: 505

Type: c

Sources: Mourer-Chauviré 1984b; Weniger 1982

Layer: I

Date: LP Early Magdalenian 14C=13,840±120, 15,230±100 BP

Fauna: *Anas platyrhynchos*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Perdix perdix*, *Pluvialis squatarola*, *Aegolius funereus*, *Upupa epops*, *Turdus iliacus*, *Pica pica*

Layer: II

Date: LP Early Magdalenian 14C=12,747±110 BP

Fauna: *Anas platyrhynchos*, *Anas acuta*, *Falco* cf. *subbuteo*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Pluvialis squatarola*, *Charadrius morinellus*, *Aegolius funereus*, *Alauda arvensis*, *Hirundo daurica*, *Cinclus cinclus*, *Turdus pilaris*, *Turdus iliacus*, *Pica pica*, *Corvus monedula*, *Corvus frugilegus*

Det.: Mourer-Chauviré

BRD 128 Steeten an der Lahn (Hessen)

Type: o

Sources: Lambrecht 1933; Nehring 1880

Date: LP ?

Fauna: *Anas* sp., *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Columba* sp., *Corvus* sp., cf. *Fringilla* sp.

Det.: Nehring

Notes: finds from several fissure fillings around Steeten; probably at least partly the same site as BRD 82.

BRD 129 Steinbergwandnische (Bayern)

Type: c

Sources: Andree 1939; Birkner 1932; Gumpert 1933; Wolf 1938–41

Layer: VIII

Date: LP LG Late Magdalenian

Fauna: *Anas* sp., *Accipiter nisus*?, *Lagopus* sp., *Strix* sp., *Turdus* sp., *Corvus* sp.

Det.: Schlosser

BRD 130 Steinkirche (Niedersachsen)

Type: c

Sources: Andree 1939; Lambrecht 1933; Schlosser 1926a; Wolf 1938–41

Date: LP UP

Fauna: *Anas* spp., *Falco* sp., *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Turdus* sp., *Corvus* sp., *Fringilla* sp.

Det.: Schlosser

Notes: *Rallus aquaticus* and *Nyctea scandiaca* mentioned by Lambrecht.

BRD 131 Stellmoor (Schleswig-Holstein)

Type: o

Sources: Burdukiewicz 1986; Heinrich 1977 (Krause & Kollau 1943)

Date: LP LG Hamburgian 14C= 12,180±130, 12,190±125 BP (Bölling)

Fauna: *Cygnus* sp., *Anser* sp., *Anatidarum*, *Lagopus lagopus*, *Calidris alpina*

Date: LP LG Ahrensburgian (Late Dryas 3) 14C= 9,800–10,100 BP

Fauna: *Gavia arctica*, *Cygnus cygnus*, *Anser* sp., *Aquila chrysaetos*, *Lagopus lagopus*, *Philomachus pugnax*, *Larus argentatus/fuscus*, *Larus marinus/hyperboreus*, *Lari-*
dae sp., *Strigidae* sp. *Alaudidae* sp., *Corvus corone*

Det.: Krause; Kollau

BRD 132 St. Wolfgangshöhle (Bayern)

Type: c

Sources: Lambrecht 1933; Schlosser 1899a; Wolf 1938–41 (Schlosser 1899b)

Layer: Untere gelbe Nagerschicht

Date: LP

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Perdix perdix*,
Rallus aquaticus, *Larus ridibundus*, *Vanellus vanellus*, *Strix* cf. *aluco*, *Bubo bubo*,
cf. *Hirundo* sp., *Turdus merula*, *Fringillidae* sp.

Layer: Obere weisse Nagerschicht

Date: LP

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Det.: Schlosser

BRD 133 Sudmer-Berg 1 (Niedersachsen)

Alt.: 270

Type: c

Sources: Lambrecht 1933; Nehring 1880 (Giebel 1851)

Date: LP

Fauna: *Lagopus lagopus*, *Columba* sp., *Alauda* sp., *Fringilla* sp.

Det.: Giebel, Nehring

Notes: also known as Sudmerberg bei Goslar

BRD 134 Sudmer-Berg 2 (Niedersachsen)

Alt.: 230

Type: c

Sources: von Koenigswald 1972; Jánossy 1976c

Date: MP Early MP "Elster-interstadial"

Fauna: *Anas* sp., *Lagopus lagopus*

Det.: Jánosy

BRD 135 Taubach (Thüringen)

Alt.: 235

Type: o

Sources: Fischer & Mauersberger 1989; Heinrich & Jánosy 1978b; Jánosy 1977b; Lambrecht 1933; Stephan 1977, 1984 (Soergel 1913, Freudenberg 1914)

Date: LP ?

Fauna: *Tachybaptus ruficollis*, *Cygnus olor*, *Anser anser* ?, *Mergus merganser*

Date: LP ?

Fauna: *Anas platyrhynchos*

Det.: Soergel

Notes: eggshells

Date: LP Eem ? TL (travertines) 111 ± 12 , 116 ± 17 KA BP

Fauna: *Cygnus* cf. *cygnus*, *Tadorna* cf. *tadorna*, *Anas platyrhynchos*, *Anas* cf. *penelope*, *Bucephala clangula*, *Mergus merganser*, *Pandion haliaetus*, *Asio flammeus*, *Dendrocopos major*, *Sturnus vulgaris*

Det.: Jánosy

Date: LP Eem ? TL (travertines) 111 ± 12 , 116 ± 17 KA BP

Fauna: *Cygnus* sp., *Anser* sp., *Anas* sp., *Netta* sp.?, *Aythya* sp.?

Det.: Stephan

Notes: eggshells

Date: LP ?

Fauna: *Anas querquedula*, *Aythya fuligula*

Det.: ?

Stored: Museum für Naturkunde der Humboldt-Universität zu Berlin

BRD 136 Teufelsbrücke (Thüringen)

Alt.: 400

Type: c

Source: Musil 1980a

Layer: 1–2

Date: LP LG Magdalenian VI, Dryas 2?

Fauna: *Lagopus* sp.

Layer: 2–3a

Date: LP LG Magdalenian VI, Dryas 2?

Fauna: *Falco subbuteo*, *Bonasa bonasia*, *Lagopus* sp.

Layer: 3

Date: LP LG Magdalenian VI, Dryas 2?

Fauna: *Cygnus olor*, *Falco* sp., *Lagopus* sp., *Phasianus* sp., *Columba* sp., *Cinclus* sp., *Turdus viscivorus*, *Pyrrhocorax graculus*

Layer: 3a–4

Date: LP LG Magdalenian VI, Dryas 2?

Fauna: *Anser* sp.

Layer: 4

Date: LP LG Magdalenian VI, Dryas 2
 Fauna: *Anser* sp., *Lagopus* sp., *Corvus corax*
 Det.: Musil

BRD 137 Teufelsküche (Baden-Württemberg)

Type: c
 Sources: Andree 1939; Wolf 1938–41 (Zotz 1928)
 Layer: 2
 Date: LP LG Magdalenian
 Fauna: *Anser* sp., *Lagopus* sp., *Tetrao tetrax*, *Pyrrhocorax graculus*
 Det.: Stehlin
 Notes: also known as Ölberg

BRD 138 Thiede (Niedersachsen)

Type: c
 Sources: Fischer & Mauersberger 1989; Koken 1912; Lambrecht 1933; Nehring 1880 (Wollemann 1887, Nehring 1889b)
 Date: LP
 Fauna: *Anser* sp., *Anas* cf. *platyrhynchos*, *Anas* cf. *crecca*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrax*, *Gallus* sp., *Gallinago media*, *Gallinago gallinago*, *Asio flammeus* ?, *Alauda* cf. *arvensis*, *Galerida* cf. *cristata*, *Hirundo rustica*, *Corvus corax*, *Carduelis cannabina*, *Emberiza* sp., *Emberiza* cf. *citrinella*, *Miliaria calandra*
 Det.: Nehring
 Stored: Museum für Naturkunde der Humboldt-Universität zu Berlin

BRD 139 Thorloeh (Bayern)

Type: c
 Sources: Wolf 1938–41 (Nehring 1879)
 Date: LP ?
 Fauna: *Corvus monedula*

BRD 140 Unkelstein bei Remagen (Rheinland-Pfalz)

Type: o
 Sources: Lambrecht 1933; Nehring 1880
 Date: LP ?
 Fauna: *Corvus corax*
 Det.: Nehring

BRD 141 Untermassfeld (Thüringen)

Type: o
 Sources: Jánossy 1988; Mourer-Chauviré 1993
 Date: EP Lowest Biharian, "Allophaiomys-Zone" MNQ 19–20

Fauna: *Cygnus* sp., *Anser* aff. *subanser*, *Haliaeetus* aff. *angustipes*, *Francolinus* *capeki*,
Turdus sp. *Corvus* aff. *jánoszyi*, *Garrulus* aff. *glandarius*
 Det.: Jánoszy

**BRD 142 Untertürkheim, Biedermannscher Steinbruch
 (Baden-Württemberg)**

Alt.: 220

Type: o

Sources: Andree 1939; Wagner 1991 (Berckhemer 1935)

Layer: 3

Date: LP Probably Eem (IS 5e) TL Travertine = 105 ± 4 , 105 ± 8 , 106 ± 6 , 133 ± 19
 KA

Fauna: *Cygnus* sp., *Anser anser*, *Anas platyrhynchos*, *Accipiter nisus*, *Pyrhula pyrrhula*,
Montifringilla nivalis, *Carduelis chloris*

Layer: 4 "Steppennagerschicht"

Date: LP Probably IS 5d

Fauna: *Mergus merganser*, *Mergus serrator*, *Falco columbarius*, *Falco tinnunculus*,
Perdix perdix, *Anthus pratensis*, *Turdus iliacus*

Det.: Soergel

Notes: also known as Stuttgart-Untertürkheim

BRD 143 Urdhöhle (Thüringen)

Alt.: 300

Type: c

Source: Musil 1971

Layer: VI f

Date: LP LG

Fauna: *Tetrao tetrix*

Layer: VIa

Date: LP LG

Fauna: *Tetrao tetrix*

Layer: V

Date: LP "Hochglazial"

Fauna: *Lagopus* sp.

Det.: Musil

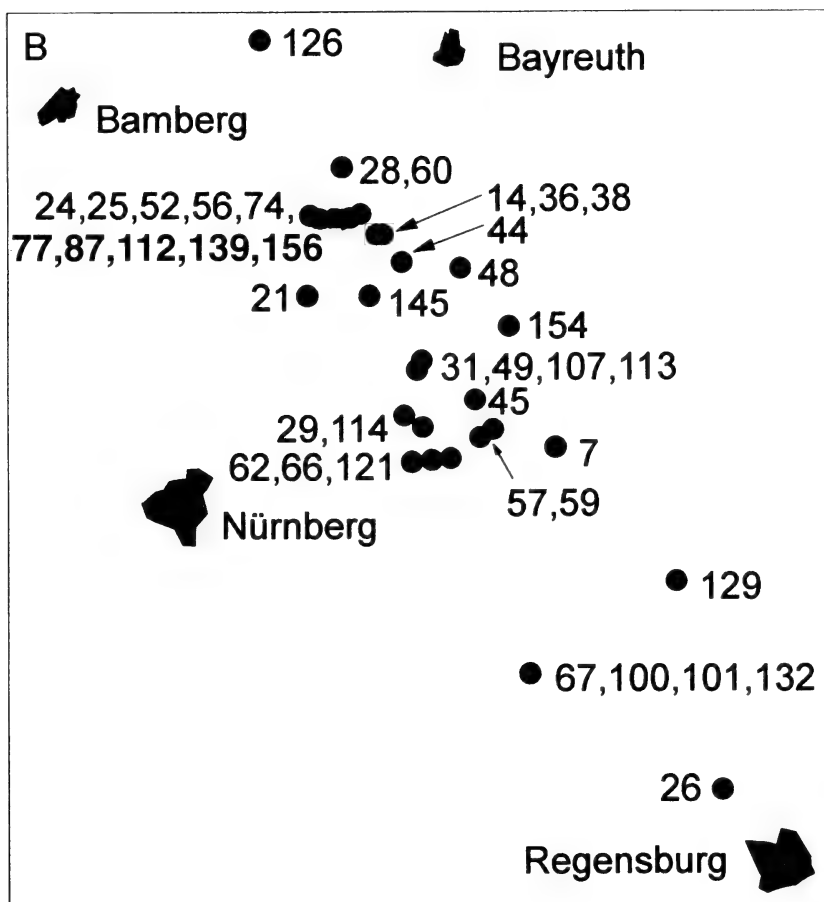
BRD 144 Voigtstedt (Thüringen)

Type: c

Sources: Jánoszy 1965, 1983a; Kretzoi & Krolopp 1975

Date: MP "Early MP"

Fauna: *Phalacrocorax carbo*, *Ardea* cf. *cinerea*, *Ciconiidae* sp. (= *Pelargosteon*
tothi(?)), *Cygnus* sp., *Anser subanser*, *Branta* cf. *ruficollis*, *Tadorna* sp.?, *Anas* sp.,
Anas cf. *platyrhynchos*, *Anas* cf. *penelope*, *Anas* cf. *crecca*, *Aythya* cf. *fuligula*,
Aythya cf. *nyroca*, *Bucephala angustipes*, *Mergus merganser*, *Haliaeetus* sp., *Tetrao*
partium, *Coturnix* cf. *coturnix*, *Grus* cf. *grus*, *Porzana* cf. *porzana*, *Gallinula* sp.?,



Not exactly localized site in this area: 39

GERMANY (BRD)

Pluvialis sp., *Tringa* cf. *ochropus*, Strigidae sp., *Saxicola* cf. *torquata*, *Corvus* cf. *corone*, *Garrulus* sp.,

Det.: Jánosy

Stored: Institut für Quartärpaläontologie, Weimar

BRD 145 Wasserstein bei Betzenstein (Bayern)

Alt.: 530

Type: c

Source: Brunner 1953a

Date: LP

Fauna: *Lagopus lagopus*

Det.: Brunner

BRD 146 Weimar (Thüringen)

Type: o

Source: Stephan 1984

Date: LP? Eem ? U/Th 115–151 KA BP

Fauna: *Ardea cinerea* ?, *Cygnus olor* ?, *Vanellus vanellus* ?, *Panurus biarmicus* ?

Det.: Stephan

Notes: eggshell in travertine; identifications uncertain

BRD 147 Weimar-Ehringsdorf (Thüringen)

Alt.: 240

Type: o

Sources: Grimm 1970; Heinrich & Jánossy 1978b; Jánossy 1975a; Stephan 1975a,b

Layer: Obere Travertin

Date: LP End Eem (s. l.)/Early Würm TL=100–130 KA BP

Fauna: *Anas aff acuta*, *Tetrao tetrix*

Det.: Jánossy

Date: LP?

Fauna: *Gavia* sp. ?, *Bubulcus ibis* ?/ *Egretta garzetta* ?, *Anser anser* ?, *Anas platyrhynchos*, *Anas clypeata* ?, *Aythya nyroca* ?, *Calidris alpina* ?, *Caprimulgus* sp. ?

Det.: Stephan

Notes: eggshells; identifications very doubtful

Fauna: *Tetrao tetrix*

Det.: Jánossy

BRD 148 Weinberghöhlen bei Mauern (Bayern)

Alt.: 430

Type: c

Sources: Koenigswald 1974; Musil 1980b

Layer: c/E

Date: LP “Hochglazial” Pavlovian (C) 14C=29,410±470 BP (C)

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Corvus corax*

Det.: Stehlik

Layer: D

Date: LP “Hochglazial” 14C=28,265±325 BP

Fauna: *Lagopus lagopus*, *Turdus aff merula*

Det.: Stehlik, Jánossy

Layer: E

Date: LP “Hochglazial”

Fauna: *Crex crex*, *Nyctea scandiaca*, *Alauda* cf. *arvensis*, *Hirundo rustica*, *Oenanthe* cf. *oenanthe*, *Carduelis* cf. *flammea*

Det.: Jánossy

Layer: F

Date: LP Altmühlien

Fauna: *Anser* sp., *Anas* sp., cf. *Pernis* sp., cf. *Buteo* sp., *Lagopus mutus*, *Otis tarda*,
Fulica atra

Det.: Stehlik

Layer: G

Date: LP "Mitteleuropäisches Spät-Micoquien"

Fauna: *Lagopus lagopus*

Det.: Stehlik

Layer: G/G'/H/I

Date: LP "Mitteleuropäisches Spät-Micoquien"

Fauna: cf. *Hirundo rupestris*

Det.: von den Driesch

Stored: Bayerische Staatssammlung für Paläontologie und historische Geologie.

BRD 149 Weinheim (Baden-Württemberg)

Source: Lambrecht 1933 (Freudenberg 1914)

Fauna: *Perdix perdix*

BRD 150 Westeregeln bei Magdeburg (Sachsen-Anhalt)

Type: c

Sources: Fischer & Mauersberger 1989; Lambrecht 1933; Nehring 1880, 1891

Date: LP

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Aegypius* cf. *monachus*, *Tetrao tetrix*, *Otis tarda*, *Alauda* cf. *arvensis*, *Motacilla* sp., *Hirundo rustica*, *Luscinia luscinia* ?, *Turdus pilaris*, *Turdus* sp., *Fringilla montifringilla*

Det.: Nehring

Stored: Museum für Naturkunde der Humboldt-Universität zu Berlin

BRD 151 Wildscheuer bei Steeden (Hessen)

Type: c

Sources: Andree 1939; Koken 1912; Lambrecht 1933; Musil 1980b; Nehring 1880; Wolf 1938–41 (Cohausen 1879, Behlen 1906)

Layer: I upper

Date: LP LG Magdalenian

Fauna: *Lagopus lagopus*

Layer: I lower

Date: LP LG Early Magdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Alauda* sp.

Layer: III

Date: LP Hochaurignacian

Fauna: *Lagopus* sp.

Layer: 4

Date: LP Aurignacian "WI/II-Interstadial"

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Layer: unstratified

Date: LP

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus?*, *Perdix perdix*,
Fringillidae sp.

Det.: Nehring

BRD 152 Wildweiberlei (Rheinland-Pfalz)

Type: c

Source: Arts & Deeben 1987

Date: LP LG Late Magdalenian

Fauna: *Lagopus mutus*

BRD 153 Wildweiberhaus-Felsen (Hessen)

Alt.: 390

Type: o

Source: Jacobshagen 1955

Date: LP LG below Laacher-See layer Bölling?

Fauna: *Mergus merganser*, *Falco tinnunculus*, *Coturnix coturnix*, *Perdix perdix*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Pluvialis squatarola*, *Vanellus vanellus*, *Scolopax rusticola*, *Strix aluco*, *Asio otus*, *Alauda* sp., *Cinclus cinclus*, *Corvus monedula*, *Parus major*, *Passer* sp.

BRD 154 Windloch bei Sackdilling (Bayern)

Type: c

Sources: Brunner 1934; Jánossy 1976c; Wolf 1938–41

Date: MP

Fauna: *Francolinus capeki*, *Tetrao praeurogallus*

Det.: Brunner; Jánossy

Stored: Bayerischen Staatssammlung für Paläontologie und Historische Geologie

Notes: also known as Sackdillinger Höhle

BRD 155 Wüste Scheuer (Thüringen)

Type: c

Sources: Eisel 1886; Koken 1912; Wolf 1938–41 (Hess von Wichdorff 1930)

Date: LP/Hol

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Gallus gallus*, *Tetrao tetrix*, *Corvus corax*

Det.: Liebe

Notes: also known as Döbritzer höhle

BRD 156 Zwergloch (Bayern)

Type: c

Sources: Lambrecht 1933; Nehring 1880; Wolf 1938–41 (Ranke 1879)

Date: LP "Solutrean" or younger

Fauna: *Anser anser*, *Anas platyrhynchos*, *Lagopus lagopus*, *Tetrao tetrix*, *Tetrao urogallus*, *Perdix perdix*, *Gallus gallus*, *Columba livia*, *Glaucidium passerinum*?, *Dendrocopos medius*, *Turdus pilaris/philomelos*, *Corvus monedula*, *Fringilla montifringilla*

Det.: Ranke, Nehring

Notes: *Hystrix* present, which may indicate an early Würmian age.

BRD 157 Endingen (Mecklenburg-Vorpommern)

Type: o

Sources: Heinrich 1977; Terberger 1996 (Deecke 1900)

Date: LP LG Alleröd 14C=11,555±100 BP

Fauna: Anatidae sp.

Det: Deecke

Stored: University of Greifswald

BRD 158 Steinheim an der Murr (Baden-Württemberg)

Type: o

Alt.: 200

Source: Bloos et al. 1991

Date: LP border Eem/Würm

Fauna: *Lagopus* cf. *lagopus*, *Coturnix coturnix*, *Porzana porzana*

Det: Böttcher

BRD 159 Langenaltheimer Hart bei Pappenheim (Bayern)

Type: c

Source: Krumbeck 1935

Date: LP Late Eem/Early Würm

Fauna: *Tetrao tetrix*, *Tetrao urogallus*

Det: Schmidtgen

GREECE

GR 1 Apopanti (Armathia)

Alt.: 40

Type: c

Source: Pieper 1984

Fauna: *Athene cretensis*

Det.: Pieper

GR 2 Cave SE Pigadia (Karpathos)

Type: c

Source: Weesie 1984

Date: LPMP "Mindel or younger"

Fauna: *Haliaeetus albicilla*, *Rallus aquaticus*, *Columba livia*, *Columba oenas/livia*, *Athene noctua*, *Tyto alba*, *Prunella collaris*, *Oenanthe* sp., *Corvus frugilegus*, *Corvus corone/frugilegus*

Det.: Weesie

GR 3 Elaichoria 3 (Chalkidiké)

Type: c

Source: Mlíkovský 1995a

Date: LP

Fauna: *Neophron percnopterus*, *Tetrao tetrix*, *Alectoris graeca*, *Columba livia*, *Pyrrhocorax graculus***GR 4 Gerani II (Crete)**

Type: c

Sources: Weesie 1982a, 1987a,b

Date: LP ?

Fauna: *Puffinus puffinus yelkouan*, *Columba livia/oenas*, *Athene cretensis*, *Asio flammeus*, *Garrulus glandarius*

Det.: Weesie

Stored: Institute for Earth Sciences, Utrecht

GR 5 Gerani IV (Crete)

Type: c

Sources: Weesie 1987a,b

Date: LP ?

Fauna: *Gypaetus barbatus*, *Scolopax rusticola*, *Pyrrhocorax graculus*, *Corvus monedula*

Det.: Weesie

Stored: Institute for Earth Sciences, Utrecht

GR 6 Gumbes B (Crete)

Type: c

Sources: Weesie 1982a, 1987a,b

Date: LP ?

Fauna: *Falco tinnunculus*, *Fulica atra*, *Columba livia*, *Columba livia/oenas*, *Columba palumbus*, *Tyto alba*, *Athene cretensis*, *Asio flammeus*, *Turdus* sp., *Garrulus glandarius*, *Corvus monedula*, *Corvus corax*

Det.: Weesie

Stored: Institute for Earth Sciences, Utrecht

GR 7 Gumbes C (Crete)

Type: c

Sources: Weesie 1982a, 1987a,b

Date: LP ?

Fauna: *Anas querquedula*, *Columba livia/oenas*, *Columba oenas*, *Otus scops*, *Athene cretensis*, *Asio flammeus*, *Dendrocopos leucotos*, *Garrulus glandarius*, *Corvus monedula*

Det.: Weesie

Stored: Institute for Earth Sciences, Utrecht

GR 8 Kephalaria (Argolis)

Type: c

Source: Reisch 1976

Layer: c1-G

Date: LP "spätes Jungpaläolithikum-spätes Mittelpaläolithikum"

Fauna: *Alectoris graeca***GR 9 Kitsos (Attika)**

Alt.: 290

Type: c

Sources: Mourer-Chauviré 1971, 1981a

Layer: S 2 C 5

Date: LP Early Würm, Mousterian 14C = 40,000 BP

Fauna: *Falco naumanni*, *Falco tinnunculus*, *Alectoris graeca*, *Coturnix coturnix*, *Grus grus*, *Aegolius funereus*, *Calanderella brachydactyla*, *Turdus viscivorus*, *Sturnus vulgaris*

Layer: SE4 C 5

Date: LP

Fauna: *Alectoris graeca*

Layer: SE4 C 1c-2

Date: LP

Fauna: *Alectoris graeca*

Layer: SE4 C 3-4

Date: LP

Fauna: *Haliaeetus albicilla*

Layer: SE4 F d P

Date: LP

Fauna: *Alectoris graeca*

Det.: Mourer-Chauviré

GR 10 Liko cave (Crete)

Alt.: 5

Type: c

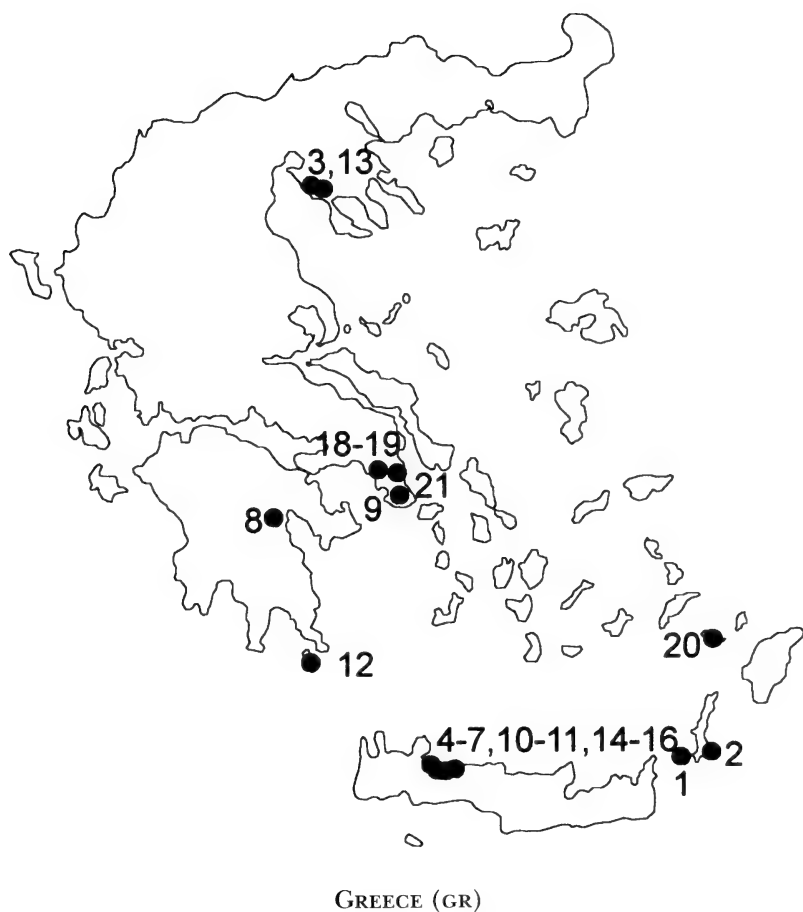
Sources: Weesie 1982a, 1987a,b

Layer: a

Date: LP?

Fauna: *Gyps fulvus*, *Accipiter gentilis*, *Buteo buteo*, *Falco tinnunculus*, *Falco subbuteo*, *Falco eleonora*, *Falco peregrinus*, *Glareola* sp., *Scolopax rusticola*, *Columba oenas*, *Columba livia/oenas*, *Columba palumbus*, *Tyto alba*, *Otus scops*, *Athene cretensis*, *Aegolius funereus*, *Apus apus*, *Apus melba*, *Prunella collaris*, *Erithacus rubecula*, *Oenanthe hispanica*, *Zoothera dauma*, *Turdus iliacus*, *Turdus* sp., *Muscicapa striata*, *Garrulus glandarius*, *Pyrhacorax graculus*, *Pyrhacorax pyrrhacorax*, *Corvus monedula*, *Corvus corone/fragilegus*, *Fringilla coelebs/montefringilla*, *Carduelis chloris*, *Pyrhula pyrrhula*, *Coccothraustes coccothraustes*, *Emberiza* sp.

Layer: a/b



Date: LP?

Fauna: *Accipiter gentilis*, *Falco tinnunculus*, *Falco eleonora*, *Scolopax rusticola*, *Columba oenas*, *Columba oenas/livia*, *Columba palumbus*, *Athene cretensis*, *Erithacus rubecula*, *Turdus iliacus*, *Turdus* sp., *Garrulus glandarius*, *Pyrhacorax graculus*, *Pyrhacorax pyrrhacorax*, *Corvus monedula*, *Corvus corone/fragile*, *Fringilla coelebs/montefringilla*, *Miliaria calandra*, *Emberiza* spp.

Layer: b

Date: LP?

Fauna: *Columba oenas*, *Tyto alba*, *Athene cretensis*, *Prunella collaris*

Layer: c

Date: LP?

Fauna: *Haliaeetus albicilla*, *Gyps melitensis*, *Buteo buteo*, *Falco eleonora*, *Porzana porzana*, *Scolopax rusticola*, *Columba livia*, *Columba oenas*, *Columba livia/oenas*, *Columba palumbus*, *Tyto alba*, *Otus scops*, *Athene cretensis*, *Aegolius funereus*, *Apus melba*, *Hirundo daurica*, *Erithacus rubecula*, *Monticola solitarius*, *Zoothera dauma*, *Turdus* spp., *Turdus pilaris/viscivorus*, *Garrulus glandarius*, *Pyrhcorax graculus*, *Corvus monedula*, *Corvus corone/frugilegus*, *Sturnus* sp., *Fringilla coelebs/montefringilla*, *Carduelis chloris*, *Emberiza* sp.

Layer: c/d

Date: LP?

Fauna: *Scolopax rusticola*, *Columba livia*, *Columba livia/oenas*, *Tyto alba*, *Athene cretensis*, *Turdus* spp., *Corvus monedula*, *Emberiza* sp.

Layer: d

Date: LP?

Fauna: *Aquila chrysaetos*, *Aquila chrysaetos simurgh*, *Falco tinnunculus*, *Falco eleonora*, *Porzana porzana*, *Scolopax rusticola*, *Columba livia*, *Columba livia/oenas*, *Columba oenas*, *Tyto alba*, *Athene cretensis*, *Asio flammeus*, *Aegolius funereus*, *Apus apus*, *Calandrella brachydactyla*, *Erithacus rubecula*, *Zoothera dauma*, *Turdus* spp., *Turdus viscivorus/pilaris*, *Garrulus glandarius*, *Pyrhcorax graculus*, *Corvus monedula*, *Sturnus* sp., *Emberiza* sp.

Layer: e

Date: LP?

Fauna: *Anas querquedula*, *Columba livia/oenas*, *Athene cretensis*, *Aegolius funereus*, *Turdus* sp., *Miliaria calandra*

Layer: A

Date: LP?

Fauna: *Accipiter nisus*, *Coturnix coturnix*, *Scolopax rusticola*, *Columba palumbus*, *Athene cretensis*, *Corvus monedula*

Layer: B

Date: LP?

Fauna: *Phalacrocorax aristotelis*, *Anas penelope*, *Gypaetus barbatus*, *Accipiter gentilis*, *Accipiter nisus*, *Buteo buteo*, *Aquila chrysaetos simurgh*, *Falco tinnunculus*, *Falco subbuteo*, *Falco eleonora*, *Gallinula chloropus*, *Scolopax rusticola*, *Columba oenas*, *Columba livia/oenas*, *Columba palumbus*, *Tyto alba*, *Otus scops*, *Athene noctua*, *Aegolius funereus*, *Caprimulgus europaeus*, *Apus melba*, *Dendrocopos leucotos*, *Hirundo daurica*, *Prunella collaris*, *Oenanthe hispanica*, *Zoothera dauma*, *Turdus iliacus*, *Turdus* sp., *Turdus pilaris/viscivorus*, *Garrulus glandarius*, *Pyrhcorax graculus*, *Pyrhcorax pyrrhcorax*, *Corvus monedula*, *Corvus corone/frugilegus*, *Sturnus* sp., *Fringilla coelebs/montefringilla*

Layer: c

Date: LP?

Fauna: *Corvus monedula*

Layer: D

Date: LP?

Fauna: *Branta ruficollis*, *Aegyptius monachus*, *Accipiter nisus*, *Buteo buteo*, *Aquila chrysaetos*, *Falco tinnunculus*, *Columba oenas/livia*, *Tyto alba*, *Ketupa zeylonensis*, *Athene cretensis*, *Corvus monedula*, *Corvus corone/frugilegus*

Layer: V

Date: LP?

Fauna: *Haliaeetus albicilla*, *Aegypius monachus*, *Accipiter gentilis*, *Accipiter nisus*, *Buteo buteo*, *Aquila chrysaetos simurgh*, *Falco tinnunculus*, *Falco eleonora*, *Falco peregrinus*, *Calidris canutus*, *Scolopax rusticola*, *Columba livia*, *Columba livia/oenas*, *Columba palumbus*, *Athene cretensis*, *Apus apus*, *Erithacus rubecula*, *Monticola solitarius*, *Turdus* sp., *Pyrhcorax graculus*, *Pyrhcorax pyrrhcorax*, *Corvus monedula*, *Corvus corone/fragilegus*, *Sturnus* sp., *Fringilla coelebs/montefringilla*, *Carduelis chloris*, *Coccothraustes coccothraustes*

Layer: unstratified

Date: LP?

Fauna: *Branta ruficollis*, *Gyps fulvus*, *Gyps melitensis*, *Accipiter gentilis*, *Falco tinnunculus*, *Scolopax rusticola*, *Columba oenas*, *Columba livia/oenas*, *Columba palumbus*, *Tyto alba*, *Athene cretensis*, *Prunella collaris*, *Turdus* sp., *Garrulus glandarius*, *Corvus monedula*, *Corvus corone/fragilegus*

Det.: Weesie

Stored: Institute for Earth Sciences, Utrecht

GR 11 Mavro Mouri (Crete)

Type: c

Sources: Weesie 1987a,b

Date: LP?

Fauna: *Gypaetus barbatus*, *Garrulus glandarius*, *Corvus monedula*

Det.: Weesie

Stored: Institute for Earth Sciences, Utrecht

GR 12 Nesakia (Cerigo)

Type: c

Sources: Lambrecht 1933; Newton 1922a

Date: ?

Fauna: *Columba* sp.?, *Tyto alba*, *Turdus merula*, *Corvus fragilegus* ?

Det.: Newton

Stored: British Museum (Natural History) or Musée d'Histoire Naturelle de Bâle?

GR 13 Petralona (Chalkidiké)

Type: c

Sources: Kretzoi 1977; Kretzoi & Poulianos 1981

Layer: 2

Date: MP Mosbachian, Verteszöllös phase ca. 550 KA BP

Fauna: *Buthierax pouliani*, *Alectoris graeca mediterranea*, *Columba oenas*, *Prunella collaris*

Layer: 8

Date: MP Mosbachian, Verteszöllös phase, <610 KA BP

Fauna: *Aythya* cf. *ferina*, *Alectoris graeca mediterranea*, *Larus* sp., *Columba oenas*, *Prunella collaris*

Layer: 10

Date: MP Mosbachian, Verteszöllös phase, 610 KA BP

Fauna: *Alectoris* sp., *Pyrhcorax graculus vetus*

Layer: 11

Date: MP Cromerian, Templomhegy phase, 650 KA BP

Fauna: *Anser anser*, *Alectoris graeca mediterranea*, *Perdix* cf. *Jurcsáki*, *Columba oenas*,
Columba palumbus, *Pyrhcorax graculus vetus*

Layer: 13

Date: MP Cromerian, Templomhegy phase, >650, <700 KA BP

Fauna: *Columba oenas*

Layer: 15

Date: MP Cromerian, Templomhegy phase, >650 <700 KA BP

Fauna: *Columba oenas*, *Turdus* sp.

Layer: "Mausoleum" Date: EP/MP Cromerian, Templomhegy phase

Fauna: *Falco tinnunculus*, *Alectoris graeca mediterranea*, *Perdix* cf. *Jurcsáki*, *Fulica atra*,
Columba oenas, *Columba palumbus*, *Strix aluco*, *Glaucidium passerinum*,
Bubo sp. ?, *Corvus corax*

Layer: 24

Date: EP Cromerian, Betfia (?) phase, >730 <750 KA BP

Fauna: *Columba oenas*, *Turdus* sp., *Lanius minor*

Layer: 26

Date: EP Cromerian, Betfia (?) phase, >730 <750 KA BP

Fauna: *Columba oenas*

Layer: unstratified

Date: EP/MP Mosbachian, Verteszöllös-Cromerian, Templomhegy-Betfia (?) phases

Fauna: *Falco tinnunculus*, *Alectoris* sp., *Perdix* cf. *Jurcsáki*, *Bubo* sp.

Notes: dating of this site is very controversial; the dates above are from Kretzoi & Poulianos (1981) and seem rather on the high side, but are at least partially supported by biostratigraphic studies by Kurtén

GR 14 Rethymnon fissure (Crete)

Type: c

Sources: Weesie 1982a, 1987a,b

Date: LP ?

Fauna: *Gyps fulvus*, *Athene cretensis*, *Asio flammeus*

Det.: Weesie

Stored: Institute for Earth Sciences, Utrecht

GR 15 Simonelli cave (Crete)

Type: c

Sources: Suriano 1980; Weesie 1987a,b

Layer: spoil heap

Date: LP ?

Fauna: *Gyps melitensis*

Det.: Weesie

Stored: Institute for Earth Sciences, Utrecht

Layer: ?

Date: LP?

Fauna: *Sula bassana*, *Anser albifrons*, *Athene cretensis*

Det.: Suriano

Notes: the owl originally identified as *Athene noctua* by Suriano

GR 16 Sourida fissure (Crete)

Type: c

Sources: Weesie 1987a,b

Date: LP ?

Fauna: *Buteo buteo*, *Aquila chrysaetos*, *Corvus monedula*

Det.: Weesie

GR 18 Tourkobounia 2 (Attika)

Source: Mourer-Chauviré 1980b

Date: EP late "Villafranchien superieur"

Fauna: *Perdix palaeoperdix*, Otididae, Alaudidae, *Corvus pliocaenus*

Det.: Mourer-Chauviré

GR 19 Tourkobounia 5 (Attika)

Source: Mourer-Chauviré 1980b

Date: MP "Mindel"

Fauna: *Corvus pliocaenus*

Det.: Mourer-Chauviré

GR 20 Tylos ()

Type: c

Source: Alcover et al. 1992

Date: LP

Fauna: *Branta* cf. *ruficollis*, *Falco eleonorae*, *Falco tinnunculus*, *Crex* cf. *crex* *Calidris* cf. *canutus*, *Columba oenas/livia*, *Streptopelia turtur/decaocto*, *Otus scops*, *Athene noctua*, *Delichon urbica*, *Turdus* spp., *Sylvia* sp., *Garrulus glandarius*, *Pyrhcorax* cf. *pyrhcorax*, *Corvus monedula*

Det.: Mourer-Chauviré

GR 21 Vraóna (Attika)

Alt.: 70

Type: c

Sources: Bachmayer et al. 1989; Mlíkovský in press; Symeonidis, Bachmayer & Zapfe 1978

Date: LP-Hol 14C=7,075±285,9,375+1265-1105, 14,760±645 BP

Fauna: *Anas crecca*, *Aquila* cf. *chrysaetos*, *Falco tinnunculus*, *Ammoperdix* sp.?, *Alectoris* sp., *Otis tarda*, *Charadrius* sp., *Larus minutus*, *Columba livia*, *Athene noctua*, *Hirundo rustica*, *Oenanthe* sp., *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*

Det.: Malez; Mlíkovský; Symeonidis

Notes: most remains probably latest Pleistocene in age

HUNGARY

HU 1 Baits (Gerecse)

Type: c

Sources: Jánossy 1976c, 1977a, 1979, 1980

Date: LP Middle-Upper Würmian

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Columba palumbus*, *Corvus monedula*, *Garrulus glandarius*, *Corvus corax*

Det.: Jánossy

HU 2 Balla (Bükk)

Alt.: 543

Type: c

Sources: Lambrecht 1912b, 1933; Mottl 1938, 1941; Vertes 1965

Layer: Obere

Date: LP 14C=22,300±180, 20,000±190 Gravettian

Fauna: *Branta ruficollis*?, *Anas platyrhynchos*, *Anas* cf. *penelope*, *Mergus merganser*, *Falco tinnunculus*, *Tetrao urogallus*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Crex crex*, *Numenius phaeopus/tenuirostris*, *Larus ridibundus*, *Asio flammeus*, *Surnia ulula*, *Picus canus*, *Turdus pilaris*, *Turdus philomelos*, *Perisoreus infaustus*?, *Pyrhacorax graculus/Corvus monedula*, *Pica pica*, *Nucifraga caryocatactes macrorhynchos*, *Pyrhacorax graculus*, *Pyrhula pyrrhula*, *Fringillidae* sp.

Notes: oberen gelben Diluvialton (Musil (1980b) = layer 3); the same as Mottl's (1941) "Gelbe lössartige Schicht"?; possibly Holocene admixture?

Layer: Untere

Date: LP 14C=22,300±180, 20,000±190 BP Gravettian

Fauna: *Tetrao tetrix*

Notes: untersten gelben Diluvialton

Layer: Gelb-grau

Date: LP "Protosolutreen" (=Szeletian)

Fauna: *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Corvus corax*

Notes: gelblich-grauen Diluvialton=Mottl's Grünlichgrauen Höhlenlehm (?) ("Protosolutreen")

Det.: Lambrecht, Mottl

Notes: Musil reports *Tetrao urogallus* instead of *Tetrao tetrix*.

HU 3 Ballavölgy (Bükk)

Type: c

Sources: Mottl 1941; Musil 1980b

Layer: Gelb-braun

Date: LP "Magdalenian"

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Falco tinnunculus*, *Asio flammeus*

Det: Mottl

Notes: also known as Balvavölgy

HU 4 Beremend 4 (Villány)

Type: c

Source: Jánossy 1978

Date: EPMP

Fauna: *Surnia robusta*

Det.: Jánossy

HU 5 Beremend 16–17 (Villány)

Type: o

Source: Jánossy 1991

Date: EPMP

Fauna: *Francolinus capeki*, *Porzana* cf. *parva*, *Otis kalmani*, *Gallinago* sp.,
Bombycilla sp.

Det.: Jánossy

HU 6 Beremend (Late Pleistocene Loess) (Villány)

Type: c

Sources: Jánossy 1978

Date: LP

Fauna: *Aegypius monachus*

Det.: Jánossy

HU 7 Bivak (Pilis)

Alt.: 525

Type: c

Sources: Jánossy 1976c, 1978, 1979, 1986 (Jánossy et al. 1957)

Layer: Yellow layer (1)

Date: LP Late Würmian ?

Fauna: *Anser* cf. *fabalis*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrax*, *Falco subbuteo*, *Falco peregrinus*, *Buteo* cf. *lagopus*, *Pyrrhocorax graculus*, *Pica pica*

Layer: Orange layer (2)

Date: LP Late Würmian ?

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Crex crex*, *Gallinago media*

Notes: perhaps Würm 2–3 ?

Layer: Yellowish-Grey layer (3)

Date: LP Late Würmian?

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Falco subbuteo*, *Gallinago media*, *Nyctea scandiaca*, *Pyrrhocorax graculus*, *Corvus corax*

Notes: perhaps early Würm 2 (?).

Layer: Brown/Brownish-red layer (5)

Date: LP Szeletian

Fauna: *Tetrao tetrax*, *Lagopus mutus*, *Lagopus lagopus*, *Corvus corax*

Det.: Jánossy

HU 8 Buják

Type: c

Source: Jánossy 1978

Date: LP

Fauna: *Nyctea scandiaca*, *Buteo buteo*

Det.: Jánossy

HU 9 Csákvár (Vértes)

Alt.: 204

Type: c

Sources: Jánossy 1976c; Kretzoi 1952; Lambrecht 1933; Mottl 1938; Musil 1980b, Vertes 1965

Layer: 2 (light brown layer)

Date: LP Aurignacian ?, Mid-Würmian (?)

Fauna: *Anas platyrhynchos*, *Aythya nyroca*, *Tetrao urogallus*, *Lagopus lagopus*, *Lagopus mutus*, *Corvus monedula*

Det.: Kretzoi

Notes: also known as Esterházy cave, Bárackzáza; Lambrecht also mentions *Bubo bubo*, *Nyctea scandiaca*; stone tools may actually belong to Szeletian culture**HU 10 Csarnóta 1 (Villány)**

Type: c

Sources: Jánossy 1977a; Kretzoi 1956

Date: MP

Fauna: *Hirundo* sp., *Pyrhocorax* sp.

Det.: Gaillard

Stored: University of Lyon

HU 11 Diosgyőr (Bükk)

Alt.: 240

Type: c

Source: Jánossy 1978

Date: LP Early Würm ?

Fauna: *Buteo buteo*

Det.: Jánossy

Notes: two layers, Gravettian and Szeletian

HU 12 Dorog (Pilis)

Type: c

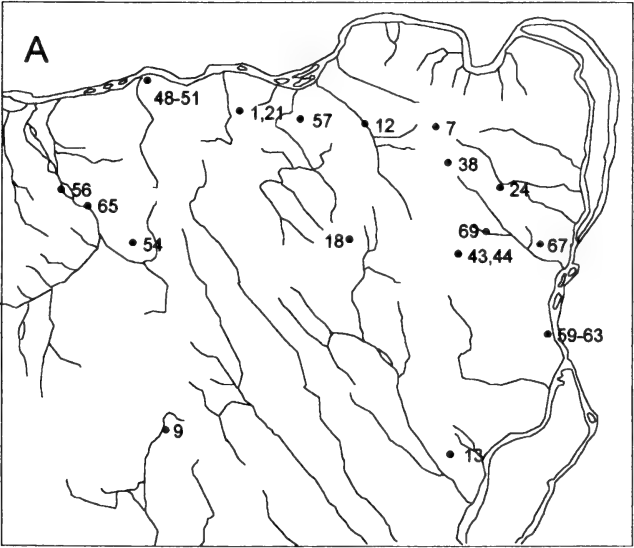
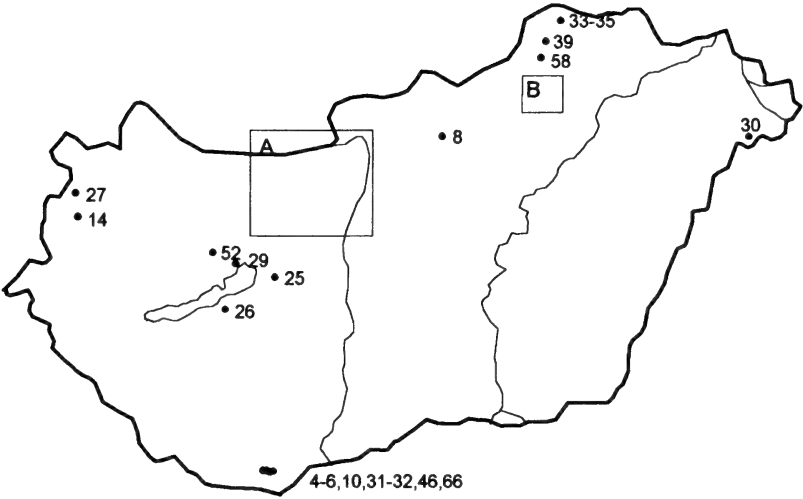
Sources: Jánossy 1953, 1986

Date: LP Subalyuk substage ?

Fauna: *Pica pica***HU 13 Érd (Buda hills)**

Alt.: 120

Type: o



HUNGARY (HU)

[See p. 262 for enlarged section B.]

Sources: Jánossy 1978, 1986 (Kretzoi 1968)

Date: LP Subalyuk substage Mousterian 14C=35,300–50,000 BP

Fauna: *Falco* cf. *tinnunculus*, *Parus* sp. ?

HU 14 Gencsapáti

Alt.: 242

Type: o

Sources: Jánossy 1976c, 1977a, 1979, 1981a, 1986; Kordos 1977

Date: LP Tokodian substage ? "Würm I"

Fauna: *Tetrao tetrix*, *Surnia ulula*, *Numenius arquata*, *Eremophila alpestris*. *Coturnix coturnix*, *Crex crex*, *Rallus* sp., *Saxicola rubetra*

HU 15 Háromkút (Bükk)

Type: c

Source: Jánossy 1976c

Date: LP Mid Würmian?

Fauna: *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus* sp.

Det.: Jánossy

Notes: culture probably Mousterian or possibly Szeletian

HU 16 Herman Ottó Cave (Bükk)

Alt.: 267

Type: c

Sources: Lambrecht 1915a, 1933

Layer: Obere Eingang

Date: LP "Spätsolutreen" (= Szeletian)

Fauna: *Anas platyrhynchos*, *Falco tinnunculus*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Tringa totanus*, *Glaucidium passerinum*?, *Aegolius funereus*, *Asio flammeus*, *Dendrocopos major*, *Turdus philomelos*, *Turdus viscivorus*, *Loxia curvirostra*, *Cinclus cinclus*, *Sturnus vulgaris*, *Pyrrhula pyrrhula*, *Coccothraustes coccothraustes*

Det.: Lambrecht

Notes: fauna probably mixed; may be partly Holocene

Date: LP "Frühsolutreen" (=Szeletian or Aurignacian)

Fauna: *Bubo bubo*

Det.: Lambrecht

Notes: also known as Ottó Herman cave

HU 17 Hollókő (Bükk)

Type: c

Sources: Jánossy 1980; Jánossy & Vörös 1979

Date: LP Mid Würmian ?

Fauna: *Columba* cf. *oenas*

Det.: Jánosy

Stored: Nat. Hist. Mus., Budapest

HU 18 Hóman (Pilis)

Type: c

Sources: Jánosy 1976c, 1977a, 1978, 1979, 1980

Date: LP Mid Würmian ?

Fauna: *Anas crecca*, *Bucephala clangula*, *Falco peregrinus*, *Falco rusticolus*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Crex crex*, *Gallinago gallinago*, *Asio flammeus*, *Pyrhocorax graculus*, *Corvus monedula*, *Garrulus glandarius*

Det.: Jánosy

Notes: may be Late Würmian (Jánosy 1986)

HU 19 Horvölgy (Bükk)

Alt.: 250

Type: c

Sources: Jánosy 1976a, 1979, 1986

Date: MP "Steinheim" Solymar subphase MNQ 24

Fauna: *Tetrao tetrix*, *Lagopus mutus*, *Perdix* cf. *perdix*, *Falco tinnunculus*, *Falco* cf. *antiquus*, *Hirundo* sp.

Det.: Jánosy

HU 20 Istállóskő (Bükk)

Alt.: 535

Type: c

Sources: Jánosy 1955, 1980, 1986; Lambrecht 1912b, 1933; Mottl 1941; Vertes 1965 (Kadic & Mottl 1944)

Layer: Gelblichbraune, lössige Schicht

Date: LP Istallosköian substage, Aurignacian 2/3

Fauna: *Anas* cf. *platyrhynchos*, *Falco tinnunculus*, *Tetrao tetrix*, *Tetrao urogallus*, *Lagopus lagopus*, *Lagopus mutus*, *Surnia ulula*, *Turdus* cf. *viscivorus*, *Garrulus glandarius*?, *Nucifraga caryocatactes*, *Coccothraustes coccothraustes* ?

Notes: Gelblichbraune, lössige Schicht=Gelbe Lehm (Lambrecht)=Layer 7 (colder than layer 8–9).

Layer: Obere Kulturschicht

Date: LP Istallosköian substage, Aurignacian 2 14C=30,900±600, 31,540±600 BP

Fauna: *Falco vespertinus*, *Falco tinnunculus*, *Tetrao tetrix*, *Tetrao urogallus*, *Lagopus lagopus*, *Lagopus mutus*, *Porzana porzana*, *Crex crex*, *Charadrius* sp., *Apus apus*, *Surnia ulula*, *Aegolius funereus*, *Dendrocopos major*, *Turdus* cf. *viscivorus*, *Turdus pilaris*, *Corvus corone*, *Corvus monedula*, *Pica pica*, *Nucifraga caryocatactes*, *Garrulus glandarius* ?, *Pyrhocorax graculus*, *Sturnus* sp. ?, *Coccothraustes coccothraustes* ?, *Loxia curvirostra*, *Pinicola enucleator* ?

Notes: Obere Kulturschicht=Layer 8.

Layer: Untere Kulturschicht

Date: LP Istallosköian substage, Aurignacian 1 14C=39,700±900 (upper part), 44,300±1900 (base).

Fauna: *Anas* cf. *platyrhynchos*, *Falco columbarius*, *Tetrao tetrax*, *Tetrao urogallus*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Porzana porzana*, *Nyctea/Bubo* sp., *Surnia ulula*, *Asio flammeus*, *Dendrocopos major*, *Hirundo rustica*, *Turdus* cf. *viscivorus*, *Turdus iliacus/philomelos*, *Corvus corone*, *Pica pica*, *Coccothraustes coccothraustes* ?, *Pinicola enucleator* ?, *Bombycilla garrulus*

Det.: Lambrecht; Jánossy

Notes: Untere Kulturschicht=Layer 9.

HU 21 Jankovich (Gerecse)

Alt.: 354

Type: c

Sources: Jánossy 1977a, 1978, 1979, 1980; Lambrecht 1933; Mottl 1941; Vertes 1965 (Lambrecht 1913)

Date: LP Mid-Late Würmian ?

Fauna: *Falco peregrinus*, *Perdix perdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Columba palumbus*, *Nyctea scandiaca*, *Asio flammeus*, *Dendrocopos major*, *Corvus corax*

Det.: Jánossy

Layer: Gelbe

Date: LP Magdalenian-Szeletian

Fauna: *Anas platyrhynchos*, *Aythya nyroca*, *Mergus albellus*, *Circus cyaneus*, *Tetrao tetrax*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Rallus aquaticus*, *Columba palumbus*, *Asio flammeus*, *Turdus philomelos*, *Turdus pilaris*, *Corvus corax*, *Corvus frugilegus*, *Pica pica*, *Nucifraga caryocatactes*, *Pyrhocorax graculus*, *Pyrhula pyrrhula* ?

Notes: both layer 2 and 3 (Magdalenian and Szeletian respectively).

Det.: Lambrecht

Notes: also known as Bajót-Öregkő, Öregkőhölle bei Bajót and Baits Cave

HU 22 Kálmán Lambrecht Cave (Bükk)

Alt.: 410

Type: c

Sources: Jánossy 1964, 1986, 1989; Vértés 1965

Layer: V

Date: LP Part of IS 5 after 5e Varbó; Probably early 5d MNQ 25

Fauna: *Anser* cf. *anser*, *Anas platyrhynchos*, *Aquila heliaca*, *Pernus apivorus*, *Buteo buteo*, *Accipiter* cf. *gentilis*, *Falco* cf. *columbarius*, *Tetrao urogallus*, *Tetrao tetrax*, *Bonasa bonasia*, *Lagopus lagopus*, *Perdix perdix*, *Coturnix coturnix*, *Crex crex*, *Rallus aquaticus*, *Otis tarda*, *Numenius* cf. *phaeopus*, *Chlidonias* sp. ?, *Columba palumbus*, *Nyctea scandiaca*, *Picus canus*, *Turdus torquatus/viscivorus*, *Sturnus vulgaris*

Layer: V/a

Date: LP part of IS 5 after 5e Varbó; probably end 5e. MNQ 25

Fauna: *Tetrao urogallus*, *Tetrao tetrax*, *Coturnix coturnix*

Layer: IV

Date: LP part of IS 5 after 5e Varbó; probably 5d. MNQ 25

Fauna: *Pernus apivorus*, *Buteo buteo*, *Accipiter* cf. *gentilis*, *Gyps aff. melitensis*, *Tetrao urogallus*, *Tetrao tetrax*, *Lagopus lagopus*, *Bonasa bonasia*, *Crex crex*, *Rallus aquaticus*, *Otis tarda*, *Nyctea scandiaca*, *Surnia ulula*, *Turdus torquatus/viscivorus*, *Corvus* sp.

Det.: Jánossy

Notes: *Gyps* aff *melitensis* replaced by *Gyps fulvus* by Jánossy (1989)

HU 23 Kecskésgalya (Bükk)

Type: c

Sources: Mottl 1941; Vertes 1965

Layer: "Dunkelgraue-Hellbraune Schicht" (2–3)

Date: LP Mousterian

Fauna: *Tetrao tetrrix*

Det.: Mottl

Notes: age may fall between lower and upper groups in Subalyuk (HU 47).

HU 24 Kiskevély (Pilis)

Alt.: 366

Type: c

Sources: Jánossy 1976c; Lambrecht 1912a, 1915a, 1933

Date: LP Lower Würmian ?

Fauna: *Tetrao urogallus*

Det.: Jánossy

Layer: Obere Lehm (2)

Date: LP "Magdalenian" (actually Gravettian)

Fauna: *Sturnus vulgaris*

Det.: Lambrecht

Date: LP Gravettian ?

Fauna: *Tetrao urogallus* ?, *Turdus* sp.

Notes: *Turdus* from upper gelblich-grauen Diluvium (2), *Tetrao urogallus* (?) from lower gelben diluvium (3).

Det.: Lambrecht

Layer: Gelbe Lehm

Date: LP "Magdalenian-Solutreen(?)" (actually Gravettian)

Fauna: *Falco tinnunculus*, *Tetrao tetrrix*, *Lagopus mutus*, *Pyrhhorax graculus*, *Turdus viscivorus*

Det.: Lambrecht

Notes: also known as Csobánka

HU 25 Kisláng (Fejér province)

Type: o

Sources: Jánossy 1986; Kretzoi 1954, 1955

Date: EP Upper Villányian MN 18?

Fauna: *Struthio pannonicus*, *Anas* sp.

Det: Kretzoi

Stored: Geological Institute, Budapest

HU 26 Köröshegy

Type: o

Source: Kretzoi & Krolopp 1975

Layer: c

Date: EP Oldest Biharian, Betfia phase

Fauna: *Pelargosteon tothi*

Det.: Kretzoi

Notes: also known as Balatonföldvár

HU 27 Kőszeg

Sources: Kordos 1979; Lambrecht 1912a, 1915a, 1933

Date: LP Late Würm "Post Würm 3"

Fauna: *Crex crex*, *Columba oenas*

Det.: Capek; Lambrecht; Jánossy

Notes: also known as Seybold or Szaybold Hill, Kenyér Hill, Seybold Stone Quarry

HU 28 Kövesvárad (Bükk)

Type: c

Sources: Jánossy 1963, 1978, 1979, 1986

Date: EP Lower Biharian Templomhegy substage

Fauna: *Apus apus palapus*, *Anthus* cf. *campestris/spinoletta*

HU 29 Lovas (Bakony)

Type: o

Sources: Jánossy 1979, 1987b; Jánossy & Vörös 1979; Vértés 1965

Date: LP Mid Würmian ?

Fauna: *Grus grus*

Det.: Jánossy

Notes: one leaf-point found; Vértés (1965) reports *Tetrao* sp. from this site.

HU 30 Mérk

Type: o

Source: Lambrecht 1912a

Date: LP ?

Fauna: *Anser anser/fabalis*, *Aquila chrysaetos*

Det.: Lambrecht

HU 31 Nagyharsány-hegy 3 (Villány)

Type: c

Sources Jánossy 1980

Date: EP Lowest Biharian, Templomhegy phase

Fauna: *Otis lambrechtii*

Det.: Jánossy

HU 32 Nagyharsány-hegy (1–4) (Villány)

Type: c

Sources: Jánossy 1976c, 1977a, 1978, 1979, 1980; Lambrecht 1916, 1933

Date: EP Lowest Biharian, Templomhegy phase

Fauna: *Podiceps* aff. *nigricollis*, *Tadorna* sp., *Falco tinnunculus atavus*, *Tetrao praeurogallus*, *Tetrao partium*, *Francolinus capeki villanyensis*, *Otis kalmani*, *Columba* aff.

palumbus, *Bubo* aff *bubo*, *Surnia robusta*, *Hirundo* sp., *Pica* aff *pica major*, *Corvus* aff *monedula*, *Corvus hungaricus*

Det.: Jánossy, Lambrecht

HU 33 Osztramos 2 (Rudabánya)

Alt.: 320

Type: c

Sources: Jánossy 1976c, 1977a, 1978, 1980, 1986; Jánossy & Kordos 1976a

Date: EP Villányian/Biharian MNQ 19

Fauna: *Francolinus capeki*, *Tetrao* cf. *partium*, *Otis* cf. *lambrechtii*, *Circus* aff *cyaneus*

Det.: Jánossy

HU 34 Osztramos 5 (Rudabánya)

Type: c

Sources: Jánossy 1977a; Jánossy & Kordos 1976a

Date: EP MP Betfia phase

Fauna: *Perdix perdix Jurcsáki*

Det.: Jánossy

HU 35 Osztramos 8 (Rudabánya)

Type: c

Sources: Jánossy 1972c, 1976c, 1977a, 1986; Jánossy & Kordos 1976a

Date: EP Lower Biharian Betfia substage, MNQ 19

Fauna: *Francolinus capeki*, *Tetrao partium*, *Asio* aff *flammeus*, *Hirundo* cf. *rustica*

Det.: Jánossy

HU 36 Peskő (Bükk)

Alt.: 856

Type: c

Sources: Jánossy 1986; Lambrecht 1912b, 1933; Mottl 1941; Vértés 1965

Layer: brick red layer

Date: LP Pilisszantóian substage

Fauna: *Falco tinnunculus*, *Falco columbarius*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Rallus aquaticus*, *Crex crex*, *Asio otus*, *Surnia ulula*, *Turdus viscivorus*, *Garrulus glandarius*, *Corvus corax*, *Pyrrhocorax pyrrhocorax*, *Nucifraga caryocatactes macrorhynchos*, *Corvus frugilegus*, *Pica pica*

Det.: Jánossy

Layer: Rötliche schicht

Date: LP "Magdalenian I"

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Surnia ulula*, *Turdus* sp., *Pyrrhocorax graculus*.

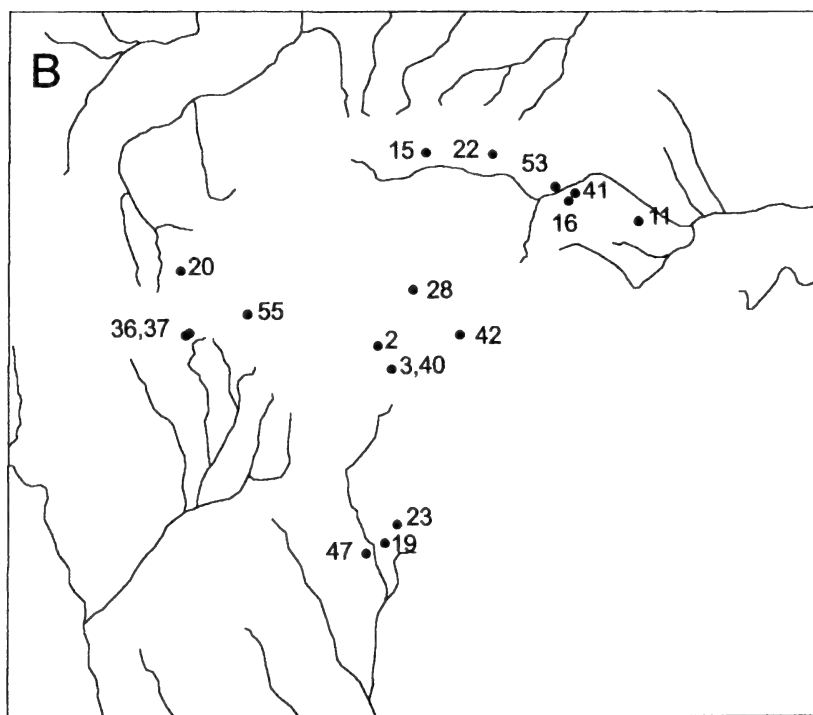
Det: Mottl

Layer: Grünlichbraune schicht

Date: LP "Hochaurignacian" 14C=34,600±580 BP

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Det: Mottl



Not exactly localized sites in this area: 17,45,64,68

HUNGARY (HU)

Notes: two Aurignacian layers; 14C date from near border between them.

Layer: Gelbe Diluviale Ton 80 cm to bottom

Date: LP

Fauna: *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*

Det.: Lambrecht

Layer: Gelbe Diluviale Ton 30–80 cm

Date: LP

Fauna: *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Pyrrhocorax graculus*

Det.: Lambrecht

Layer: Gelbe Diluviale Ton 0–30 cm

Date: LP

Fauna: *Tetrao urogallus*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Asio flammeus*,
Picus canus, *Turdus pilaris*, *Turdus viscivorus*, *Corvus monedula*, *Pica pica*, *Nucifraga caryocatactes macrorhynchos*, *Pyrrhocorax graculus*

Det.: Lambrecht

Layer: yellowish layer

Date: LP Pilisszantoian substage

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Surnia ulula*

Det.: Jánosy

Notes: Rötliche schicht (Mottl) = Brick Red Layer (Jánosy)?

HU 37 Petényi cave (Bükk)

Alt.: 735

Type: c

Sources: Jánosy 1976c, 1977a, 1978, 1979, 1980, 1986; Jánosy & Kordos 1976b

Layer: P1 (=6)

Date: LP LG final Pleistocene Alleröd ?

Fauna: *Falco columbarius*, *Falco tinnunculus*, *Lagopus mutus*, *Lagopus lagopus*, *Tetrao tetrix*, *Coturnix coturnix*, *Crex crex*, *Vanellus vanellus*, *Arenaria interpres*, *Tringa cf. totanus*, *Apus apus*, *Picus canus*, *Dendrocopos major*, *Turdus cf. pilaris*, *Turdus cf. viscivorus*, *Pyrhocorax graculus*, *Nucifraga caryocatactes*, *Garrulus glandarius*, *Pica pica*, *Corvus corax*

Layer: H5 (=5)

Date: LP/Hol

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Scolopax rusticola*, *Turdus cf. viscivorus*, *Nucifraga sp.*

Det.: Jánosy

Notes: also known as Piskö II

HU 38 Pilisszántó 1 (Pilis)

Alt.: 423

Type: c

Sources: Jánosy 1986; Lambrecht 1915c, 1933

Layer: D1–D2

Date: LP Pilisszantoian substage

Fauna: *Podiceps auritus*, *Anas platyrhynchos*, *Anas querquedula*, *Aquila chrysaetos*, *Circus cyaneus*, *Falco cherrug*, *Falco tinnunculus*, *Falco vespertinus*, *Tetrao urogallus*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Crex crex*, *Porzana porzana*, *Vanellus vanellus*, *Himantopus himantopus*, *Gallinago media*, *Gallinago gallinago*, *Philomachus pugnax*, *Numenius sp. ?*, *Larus ridibundus*, *Sterna hirundo*, *Syrhaptes paradoxus*, *Columba palumbus*, *Asio flammeus*, *Asio otus*, *Nyctea scandiaca*, *Surnia ulula*, *Aegolius funereus*, *Athene noctua*, *Otus scops*, *Picus canus*, *Dendrocopos major*, *Hirundo rustica*, *Motacilla alba*, *Anthus sp.*, *Cinclus cinclus*, *Turdus viscivorus*, *Turdus philomelos*, *Lanius minor*, *Lanius senator*, *Oriolus oriolus*, *Corvus corax*, *Corvus monedula*, *Pica pica*, *Garrulus glandarius*, *Nucifraga caryocatactes*, *Pyrhocorax graculus*, *Pinicola enucleator*, *Pyrhula pyrrhula*, *Loxia curvirostra*

Layer: D3–D5

Date: LP Pilisszantoian substage

Fauna: *Circus macrourus*, *Tetrao urogallus*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Rallus aquaticus*, *Vanellus vanellus*, *Gallinago media*, *Asio flammeus*, *Asio otus*, *Surnia ulula*, *Picus canus*, *Turdus viscivorus*, *Turdus philomelos*, *Corvus monedula*,

Pica pica, *Garrulus glandarius*, *Nucifraga caryocatactes*, *Pyrrhonorax graculus*,
Pyrrhula pyrrhula, *Miliaria calandra*

Layer: D6–D7

Date: LP Pilisszantoian substage

Fauna: *Podiceps auritus*, *Anser* sp., *Anas querquedula*, *Anas strepera*, *Aythya nyroca*,
Buteo rufinus, *Circus cyaneus*, *Falco tinnunculus*, *Falco vespertinus*, *Tetrao urogallus*,
Tetrao tetrix, *Lagopus lagopus*, *Lagopus mutus*, *Rallus aquaticus*, *Crex crex*,
Porzana porzana, *Calidris alpina*, *Scolopax rusticola*, *Gallinago media*, *Cuculus canorus*,
Asio flammeus, *Nyctea scandiaca*, *Aegolius funereus*, *Picus canus*, *Dendrocopos major*,
Galerida cristata, *Motacilla alba*, *Turdus viscivorus*, *Turdus pilaris*, *Turdus philomelos*,
Lanius minor, *Sturnus vulgaris*, *Sturnus roseus*, *Corvus corax*, *Corvus frugilegus*,
Corvus monedula, *Pica pica*, *Nucifraga caryocatactes*, *Pyrrhonorax graculus*,
Oriolus oriolus, *Pyrrhula pyrrhula*, *Loxia curvirostra*

Det.: Lambrecht, Jánossy

HU 39 Porlyuk (Aggtelek)

Alt.: 404

Type: c

Sources: Jánossy 1976c, 1986; Jánossy, Kordos, Krolopp & Topál 1972

Layer: Lower IIIa

Date: LP part of IS 5? Varbó

Fauna: *Tetrao tetrix*

Det.: Jánossy

HU 40 Poroslyuk (Bükk)

Alt.: 420

Type: c

Sources: Jánossy 1976c, 1986

Date: LP Varbóian substage

Fauna: *Tetrao tetrix*

HU 41 Puszkaporos (Bükk)

Alt.: 273

Type: c

Sources: Jánossy 1986; Lambrecht 1933; Mottl 1941; Vértés 1965 (Lambrecht 1916b)

Layer: Gelbe Schicht (3)

Date: LP Pilisszantoian substage? "Magdalenian II"

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Date: LP Magdalenian-Szeletian

Fauna: *Ardea cinerea*, *Anas platyrhynchos*, *Anas crecca*, *Anas penelope*, *Aythya ferina*,
Aythya nyroca, *Mergus albellus*, *Circus cyaneus*, *Falco peregrinus*, *Coturnix coturnix*,
Tetrao tetrix, *Tetrao urogallus*, *Lagopus lagopus*, *Lagopus mutus*, *Haliaeetus albicilla*,
Buteo lagopus, *Falco columbarius*, *Falco tinnunculus*, *Falco vespertinus*, *Alectoris graeca*,
Crex crex, *Rallus aquaticus*, *Porzana porzana*, *Vanellus vanellus*, *Numenius* sp.,
Gallinago media, *Gallinago gallinago*, *Scolopax rusticola*, *Limosa*

limosa, *Larus ridibundus*, *Nyctea scandiaca*, *Surnia ulula*, *Asio flammeus*, *Apus apus*, *Dendrocopos major*, *Picus* sp., *Jynx torquilla*, *Galerida cristata*, *Anthus pratensis*?, *Anthus trivialis*, *Turdus viscivorus*, *Turdus* sp., *Turdus pilaris*, *Lanius senator*, *Parus major*, *Parus palustris*, *Corvus corax*, *Pica pica*, *Nucifraga caryocatactes*, *Garrulus glandarius*, *Pyrrhocorax graculus*, *Sturnus vulgaris*, *Loxia curvirostra*, *Pyrrhula pyrrhula*, *Plectrophenax nivalis*, *Passer domesticus*?, *Emberiza schoeniclus*, *Miliaria calandra*

Det.: Lambrecht; Capek

HU 42 Rejtek 1 (Bükk)

Alt.: 500

Type: c

Sources: Jánossy 1962c, 1986; Jánossy & Kordos 1976b

Layer: 9

Date: LP LG final Pleistocene

Fauna: *Perdix perdix*, *Coturnix coturnix*, *Turdus* cf. *pilaris*, *Fringilla* cf. *montefringilla*

Layer: 10

Date: LP LG final Pleistocene

Fauna: *Lagopus lagopus*, *Tetrao tetrix*, *Coturnix coturnix*, *Dendrocopos major*, *Fringilla* cf. *montefringilla*

Layer: 11

Date: LP LG final Pleistocene

Fauna: *Lagopus lagopus*, *Tetrao tetrix*, *Tetrao urogallus*, *Bonasa* sp., *Perdix perdix*, *Coturnix coturnix*, *Regulus* sp.

Layer: 12

Date: LP LG final Pleistocene

Fauna: *Lagopus mutus*, *Tetrao tetrix*, *Turdus* sp.

Det.: Jánossy

Notes: also known as Szarvaskő, Emmy rockshelter

HU 43 Remete cave (Buda hills)

Alt.: 328

Type: c

Sources: Gábori-Csánk 1993; Jánossy 1953, 1976c, 1986; Vértés 1965

Layer: d

Date: LP LG end Pilisszantoian substage ?

Fauna: *Lagopus mutus*

Layer: b

Date: LP LG end Pilisszantoian substage ?

Fauna: *Lagopus lagopus*, *Tetrao tetrix*, *Tetrao urogallus*, *Coturnix coturnix*, *Falco tinnunculus*

Det: Jánossy ?

Layer: 4

Date: LP Mid Würmian, Jankovichian ?

Fauna: *Tetrao* sp., *Lagopus* cf. *lagopus*, *Nyctea scandiaca*, *Pyrrhocorax* sp.

Det: Kretzoi

Notes: also known as Remete Felső

HU 44 Remetehegy (Buda hills)

Alt.: 338

Type: c

Sources: Jánossy 1986; Kormos & Lambrecht 1914; Lambrecht 1933

Layer: Upper

Date: LP LG end Pilisszantoian substage ?

Fauna: *Anser albifrons*, *Anas platyrhynchos*, *Anas crecca*, *Aythya nyroca*, *Buteo buteo*, *Falco columbarius*, *Falco tinnunculus*, *Falco vespertinus*, *Tetrao urogallus*, *Tetrao tetrax*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Porzana porzana*, *Crex crex*, *Asio otus*, *Asio flammeus*, *Nyctea scandiaca*, *Surnia ulula*, *Aegolius funereus*, *Glaucidium passerinum*, *Dendrocopos major*, *Hirundo rustica*, *Turdus pilaris*, *Turdus viscivorus*, *Corvus corax*, *Corvus corone*, *Nucifraga caryocatactes*, *Pica pica*, *Pyrrhocorax graculus*, *Oriolus oriolus*, *Fringilla montifringilla*, *Pyrrhula pyrrhula*, *Loxia curvirostra*, *Plectrophenax nivalis*

Notes: Remetehegy rockshelter

Layer: Lower

Date: LP LG end Pilisszantoian substage ?

Fauna: *Anas platyrhynchos*, *Anas penelope*, *Aythya nyroca*, *Buteo lagopus*, *Circus cyaneus*, *Accipiter nisus*, *Accipiter gentilis*, *Falco tinnunculus*, *Falco vespertinus*, *Tetrao urogallus*, *Tetrao tetrax*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Porzana porzana*, *Crex crex*, *Tringa sp.?*, *Scolopax rusticola*, *Columba palumbus*, *Asio otus*, *Asio flammeus*, *Nyctea scandiaca*, *Surnia ulula*, *Strix uralensis*, *Glaucidium passerinum*, *Dendrocopos major*, *Corvus corax*, *Corvus corone*, *Nucifraga caryocatactes*, *Pica pica*, *Garrulus glandarius*, *Turdus philomelos*, *Turdus viscivorus*, *Lanius collurio*

Det: Lambrecht

Notes: Remetehegy rockshelter

HU 45 Sály (Bükk)

Type: c

Source: Jánossy 1976c

Date: LP Mid Würmian ?

Fauna: *Tetrao urogallus*, *Lagopus lagopus*, *Lagopus mutus*

Det.: Jánossy

HU 46 Somssichhégy 2 (Villány)

Type: c

Sources: Jánossy 1981a, 1982b, 1986

Date: EP Lower Biharian Templomhegy substage MNQ 20

Fauna: *Anser subanser*, Anatidae, *Falco tinnunculus atavus*, *Falco cf. vespertinus*, *Tetrao partium*, *Coturnix cf. coturnix*, *Surnia robusta*, *Athene noctua cf. lunellensis*, *Picus cf. viridis*, *Dendrocopos submajor*, *Galerida cf. cristata*, *Hirundo cf. rustica*, Passeriformes

Det.: Jánosy

Notes: also known as Somssich Hill 2

HU 47 Subalyuk (Bükk)

Alt.: 300

Type: c

Sources: Jánosy 1960, 1962a, 1986; Vértes 1965

Layer: 10–16

Date: LP Subalyuk substage Late Mousterian, probably IS 5b or early 4

Fauna: *Anas querquedula*, *Gypaetus barbatus*, *Falco* cf. *peregrinus*, *Falco* cf. *vespertinus*, *Tetrao tetrix*, *Bonasa bonasia*, *Perdix perdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Tetrax tetrax*, *Numenius arquata*, *Columba palumbus*, *Bubo bubo*, *Asio otus*, *Aegolius funereus*, *Hirundo* cf. *rupestris*, *Pica pica*, *Pyrhcorax graculus*, *Plectrophenax* cf. *nivalis*

Det.: Jánosy

Notes: *Aegolius funereus* in layer 11; colder climate than lower layers.

Layer: 1–4

Date: LP Subalyuk substage Mousterian, probably = IS 5c or 5a

Fauna: *Anas platyrhynchos*, *Gypaetus barbatus*, *Aegypius monachus*, *Buteo buteo*, *Tetrao tetrix*, *Perdix perdix*, *Apus melba*, *Pyrhcorax graculus*, *Falco tinnunculus*

Det.: Jánosy

Notes: *Tetrao tetrix*, *Perdix perdix*, *Apus melba*, *Falco tinnunculus* in layer 3; also known as Mussolini-höhle

HU 48 Süttö 1,2,4 (Gerecse)

Alt.: 250

Type: c

Sources: Jánosy 1969, 1986; Jánosy & Krolopp 1981; Mottl 1941; Vértes 1965

Date: MP/LP Süttö MNQ 25

Fauna: *Falco columbarius*, *Falco tinnunculus*, *Coturnix coturnix*, *Turdus pilaris*, *Turdus philomelos*, *Coccothraustes coccothraustes*

Det.: Lambrecht

HU 49 Süttö 6 (Gerecse)

Alt.: 250

Type: c

Sources: Jánosy 1986; Jánosy & Krolopp 1981

Layer: 6/10

Date: MP Late MP, probably IS 6 Süttö MNQ 25

Fauna: *Lagopus* cf. *mutus*

Det.: Jánosy

HU 50 Süttö 7 (Gerecse)

Alt.: 250

Type: c

Source: Jánosy 1981a

Date: LP MNQ 25
 Fauna: *Tetrao tetrix*
 Det.: Jánossy

HU 51 Süttö 9 (Gerecse)

Alt.: 250
 Type: c
 Sources: Jánossy 1969, 1976a, 1986; Jánossy & Krolopp 1981
 Date: MP/LP Süttö MNQ 25
 Fauna: *Perdix perdix*, Passeriformes
 Det.: Jánossy

HU 52 Szárasgerence (Bakony)

Type: c
 Sources: Jánossy 1976c, 1986; Varrók 1955; Vértés 1965
 Layer: II ("Vörösbarna" layer)
 Date: LP Varbóian substage
 Fauna: *Tetrao urogallus*, *Tetrao tetrix*, *Lagopus* sp., *Turdus* sp., *Corvus* sp.
 Layer: III ("Szürke" layer)
 Date: LP Varbóian substage
 Fauna: *Tetrao urogallus*
 Layer: V ("Terra-rossa" layer)
 Date: LP Varbóian substage
 Fauna: *Tetrao urogallus*
 Notes: also known as Pörgölhegy, Bakonybél

HU 53 Szeleta (Bükk)

Alt.: 357
 Type: c
 Sources: Lambrecht 1933; Mottl 1938; Musil 1980b; Vértés 1965
 Layer: Obere (hellgraue und rote) Kulturschicht (layer 6–7) Date: LP Szeletian
 (Mid Würm), 14C=32620±400 BP (layer 7, uppermost = Hellgraue), lower
 layer 14C=41,700 BP.
 Fauna: *Gypaetus barbatus*

HU 54 Szelim (Gerecse)

Alt.: 284
 Type: c
 Sources: Jánossy 1976c, 1977a, 1978, 1979, 1980, 1986; Mottl 1941; Vértés 1965
 Layer: B(1–2)
 Date: LP Pilisszantoian substage LUP-Szeletian ?
 Fauna: *Anas crecca*, *Falco rusticolus*, *Falco columbarius*, *Falco subbuteo*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao urogallus*, *Tetrao tetrix*, *Perdix perdix*, *Coturnix coturnix*, *Crex crex*, *Rallus aquaticus*, *Porzana porzana*, *Philo-*

machus pugnax, *Numenius arquata*, *Columba palumbus*, *Asio flammeus*, *Aegolius funereus*, *Dendrocopos major*, *Corvus corax*

Notes: B1 = LUP, B2 = Szeletian ?; there is a break between B1 and B2, and B2 may be as old as Tokod (=IS 4).

Det.: Jánossy

HU 55 Tarkő (Bükk)

Alt.: 850

Type: c

Sources: Jánossy 1962b, 1969, 1976b, 1979, 1986

Layer: 4

Date: LP Varbőian substage MNQ 25

Fauna: *Tetrao tetrix*

Notes: "niche part" of Tarkő rockshelter

Layer: 1

Date: MP Upper Biharian, Verteszöllős substage MNQ 22

Fauna: *Apus* cf. *apus*, *Turdus* aff. *merula*, *Parus* cf. *ater*, *Miliaria* cf. *calandra*

Layer: 2

Date: MP Upper Biharian, Tarkőian MNQ 22

Fauna: *Falco tinnunculus atavus*, *Accipiter* cf. *nisus*, *Tetrao* cf. *partium*, *Perdix* cf. *perdix*, *Asio* cf. *flammeus*, *Apus submelba*, *Corvus* cf. *corax*

Notes: *Corvus* cf. *corax* also reported as *Corvus pliocaenus jánossyi* by Jánossy (1979)

Layer: 3

Date: MP Upper Biharian, Tarkőian MNQ 22

Fauna: *Aythya* cf. *nyroca*, *Tetrao* cf. *partium*, *Perdix* cf. *perdix*, *Aegolius* cf. *funereus*, *Apus submelba*, *Corvus* cf. *corax*, *Pyrrhocorax* cf. *graculus*

Layer: 4

Date: MP Upper Biharian, Tarkőian MNQ 22

Fauna: *Falco tinnunculus atavus*, *Perdix* cf. *perdix*, *Apus submelba*, *Dendrocopos major submajor*, *Picus* cf. *viridis*, *Pyrrhocorax* cf. *graculus*

Layer: 5–7

Date: MP Upper Biharian, Tarkőian MNQ 22

Fauna: *Tetrao* cf. *partium*, *Tetrao praeurogallus*

Layer: 10

Date: MP Upper Biharian, Tarkőian MNQ 22

Fauna: *Aegolius* cf. *funereus*, *Strix intermedia*

Layer: 11

Date: MP Upper Biharian, Tarkőian MNQ 22

Fauna: *Bonasa praebonasia*, *Gallinago* aff. *media*, *Strix intermedia*, *Picus* cf. *viridis*

Notes: *Dendrocopos major submajor* instead of *Picus* cf. *viridis* according to Jánossy (1976)

Layer: 12–13

Date: MP Upper Biharian, Tarkőian MNQ 22

Fauna: *Bonasia praebonasia*, *Tetrao* cf. *partium*, *Aegolius* cf. *funereus*, *Strix intermedia*

Det.: Jánossy

Stored: Nathist. Mus. Budapest

HU 56 Tata (Gerecse)

Type: o

Sources: Jánosy 1986; Lambrecht 1915a, 1933; Vértés 1965 (Kretzoi 1964)

Layer: "Am See-Ufer"

Date: LP

Fauna: *Numenius arquata*

Det.: Lambrecht

Layer: Travertin

Date: LP Subalyuk substage Micoquian, TL = $101 \pm 10, 98 \pm 8$ KA BP, U/Th = 78 ± 5 KA BP (above), 116 ± 5 KA BP (below), 14C = 33600 BP (!)

Fauna: *Anas* sp., *Circus cyaneus*, *Tetrao tetrix*, *Lagopus* sp.

Notes: deposits are from a dry period between two wetter periods

HU 57 Tokod-Nagyberek (Pilis)

Alt.: 170

Type: o

Sources: Jánosy 1971, 1976c, 1977a, 1986; Vértés 1965

Date: LP Tokodian substage 14C = 36,200 BP. probably = IS 4

Fauna: *Anas querquedula*, *Anas platyrhynchos*, *Tetrao tetrix*, *Rallus aquaticus*, *Asio flammeus*, *Bubo bubo*, *Corvus monedula*

Det.: Jánosy

Notes: "peak of Würm 1"

HU 58 Uppony 1 (Buda hills)

Alt.: 287

Type: c

Sources: Jánosy 1969, 1976c, 1977a, 1978, 1979, 1986

Layer: 1

Date: MP Oldenburgian, Uppony subphase MNQ 22

Fauna: *Lagopus* cf. *lagopus*, *Tetrao* cf. *tetrix*, *Tetrao* cf. *urogallus*, *Coturnix coturnix*, *Asio flammeus*, *Corvus monedula*, *Parus* sp., *Pyrrhula pyrrhula*, *Passer aff. montanus*, *Emberiza aff. citrinella*

Layer: 3

Date: MP Oldenburgian, Uppony subphase MNQ 22

Fauna: *Tetrao* cf. *tetrix*, *Asio flammeus*

Layer: 6

Date: MP Upper Biharian, Verteszöllös substage MNQ 22

Fauna: *Lagopus* cf. *lagopus*, *Falco* aff. *vespertinus*, *Cuculus canorus*, *Apus* cf. *melba*

Layer: 7

Date: MP Upper Biharian, Verteszöllös substage MNQ 22

Fauna: *Apus* cf. *melba*

Layer: 10

Date: MP Lower/Upper Biharian, border EPMP MNQ 21

Fauna: *Pyrrhocorax* sp., Passeriformes

Det.: Jánosy

HU 59 Várhegy-Hilton (Buda hills)

Alt.: 160

Type: c

Sources: Jánossy 1976a,c, 1977a, 1980, 1986

Date: MP Oldenburgian, Castellum subphase MNQ 24

Fauna: *Tetrao tetrix*, *Coturnix coturnix*, *Otis tarda*, *Tetrax tetrax*

Det.: Jánossy

Notes: also known as Castle Hill/Várbarlang/Burgberg-Hilton

HU 60 Várhegy, 16 Országház str. (Buda hills)

Alt.: 150

Type: c

Sources: Jánossy 1969, 1986

Date: MP Upper Biharian/Oldenburgian

Fauna: *Fringillidae* sp.

Det.: Jánossy

Notes: also known as Castle Hill

HU 61 Várhegy, 20 Országház str. (Buda hills)

Alt.: 150

Type: c

Source: Jánossy 1986

Date: MP Upper Biharian/Oldenburgian

Fauna: *Anatidae*, *Accipitriformes*

Det.: Jánossy

Notes: also known as Castle Hill

HU 62 Várhegy, 25 Fortuna str. (Buda hills)

Alt.: 150

Type: c

Sources: Jánossy 1969, 1976a, 1979, 1980, 1986

Date: MP Upper Biharian/Oldenburgian MNQ 22

Fauna: cf. *Pelargosteon tothi*, *Anser subanser*, *Tetrao* sp., *Perdix* cf. *Jurcsáki*, *Grus* cf. *grus*

Det.: Jánossy

Notes: also known as Castle Hill and Budapest-Várbarlang

HU 63 Várhegy, Uri-Gasse 72 (Buda hills)

Alt.: 150

Type: c

Source: Jánossy 1969

Date: MP "Mindel 1"

Fauna: *Anas arcensis*

Det.: Kretzoi

Notes: also known as Castle Hill

HU 64 Vaskapu (Bükk)

Type: c

Source: Mottl 1941

Layer: Hellbraune-grünlichgraue-rötliche schichte

Date: LP "Magdalenien II"

Fauna: *Lagopus lagopus*, *Lagopus mutus*

HU 65 Vértesszöllös 2 (Gerecse)

Alt.: 196

Type: o

Sources: Jánossy 1969, 1976c, 1977a, 1978, 1979, 1986, 1990a

Date: MP Upper Biharian, Vertesszöllös substage

Fauna: *Anas* cf. *platyrhynchos*, *Anas* cf. *acuta*, *Gyps* cf. *melitensis*, *Tetrao* cf. *tetrax*, *Lagopus* cf. *lagopus*, *Perdix* cf. *perdix*, *Bubo* *bubo*, *Asio* cf. *flammeus*, aff *Pinicola* sp., cf. *Pica pica*

Det.: Jánossy

Notes: TL dates = 128, 135, 210, 217, 227, 248, 325, >350 KA BP, U/Th 185±25, 225, >250 KA BP.

HU 66 Villány 3 (Villány)

Type: c

Sources: Jánossy 1974c, 1976c, 1977a, 1978, 1979, 1980, 1986; Kretzoi 1956; Mlíkovský 1982, 1992

Date: LPI Upper Villányian MN 18

Fauna: *Aquila* cf. *chrysaetos*, *Tetrao* cf. *partium*, *Francolinus subfrancolinus*, *Bubo* sp., *Surnia robusta*

Stored: Geological Institute, Budapest; Natural History Museum, Budapest

Notes: also known as Villány-Kalkberg Nord

Date: LPI MN 18

Fauna: *Anas submajor*, *Otis lambrechtii*, *Dendrocopos praemedius*, *Hirundo* sp., *Pica* aff *pica major*, *Corvus* aff *monedula*, *Emberiza* sp.,

Det.: Jánossy

Stored: Natural History Museum, Budapest

Notes: *Anas submajor*=*Tadorna tadorna* according to Mlíkovský (1982, 1992)

HU 67 Űrömhegy (Buda hills)

Alt.: 175

Type: c

Source: Jánossy 1986

Date: EP Lower Biharian Templomhegy substage

Fauna: Corvidae

Det.: Jánossy

HU 68 Ölyvesköer Fuchsloch (Bükk)

Type: c

Source: Jánosy 1960

Date: LP "Mittel-Würm"

Fauna: *Gypaetus barbatus*

Det.: Jánosy

HU 69 Ördöglyuk (Buda hills)

Alt.: 300

Sources: Jánosy 1986; Lambrecht 1933

Date: MPLate MP, Solymar subphase

Fauna: *Tetrao tetrix*, *Pyrhacorax pyrrhacorax*, *Turdus viscivorus*

Det.: Jánosy; Lambrecht

Notes: also known as Solymar

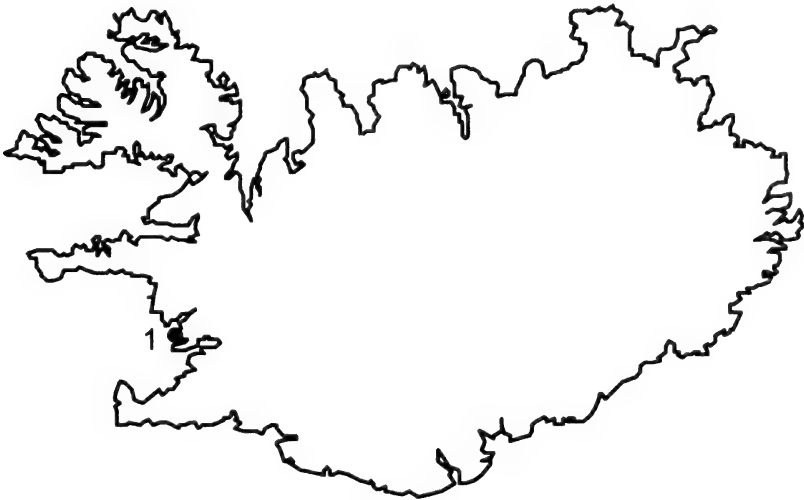
ICELAND**IC 1 Melabakkar**

Type: o

Source: Ingólfsson 1984

Date: LP LG younger than $14C = 12,290 \pm 160$ BP

Fauna: *Somateria mollissima*



ICELAND (IC)

IRAN

IRN 1 Asiab (Kermanshah valley)

Type: o

Source: Jánossy 1977c

Date: LP/Hol ca. 10 000 BP

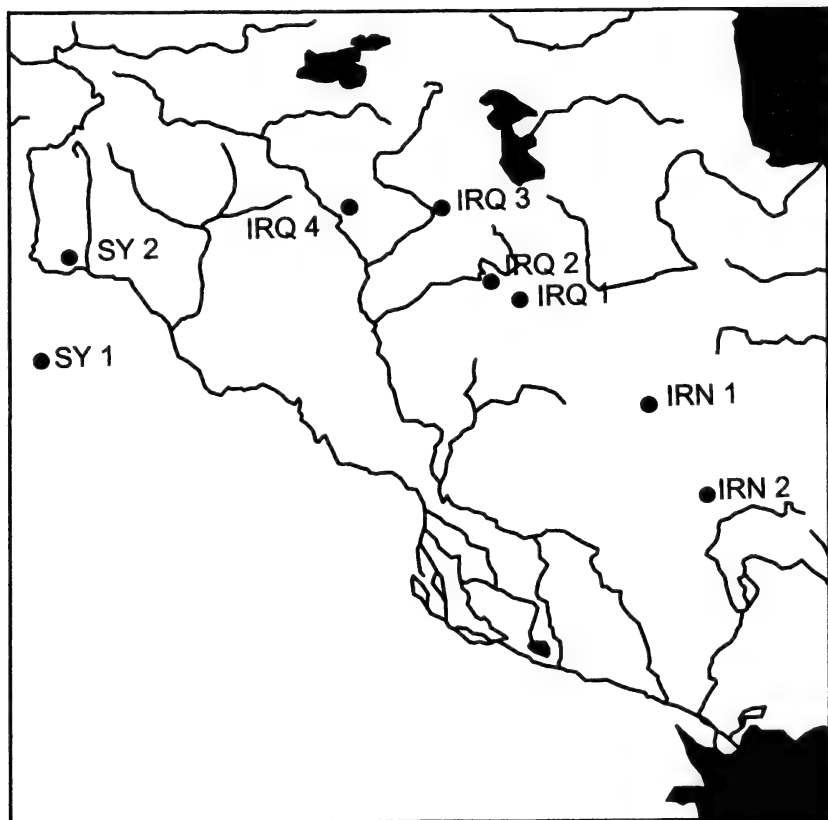
Fauna: *Egretta alba*, *Anser cf. anser*, *Tadorna cf. ferruginea*, *Aythya ferina*, *Gyps fulvus*,
Alectoris graeca, *Crex crex*, *Fulica atra*, *Bubo bubo*

Det.: Jánossy

IRN 2 Khorramabad Valley (several sites) (Luristan)

Alt.: 1,170

Type: c



SYRIA (SY), IRAN (IRN), IRAQ (IRQ)

Source: Hole & Flannery 1967

Date: LP Mousterian-Zarzian (12,000–>40,000 BP)

Fauna: *Anser anser* ?, *Francolinus francolinus*, *Alectoris chukar*, *Columba* cf. *livia*

IRAQ

IRQ 1 Hazard Merd (Kurdistan)

Alt.: 1,200

Type: c

Source: Tomskey 1982 (Garrod 1930)

Layer: c

Date: LP MPal

Fauna: *Falco* sp., *Alectoris chukar*, *Columba* sp., *Apus melba*, *Turdus viscivorus*

Det.: Bate

Stored: British Museum (Natural History) ?

IRQ 2 Palegawra (Kurdistan)

Alt.: 990

Type: c

Source: Turnbull & Reed 1974

Date: LP Zarzian 14C=11,590–14,480 BP

Fauna: *Ciconia* sp., *Tadorna tadorna*, *Anas* cf. *acuta*, *Anas* cf. *platyrhynchos*, *Neophron percnopterus*, *Haliaeetus* sp., *Falco* cf. *tinnunculus*, *Alectoris graeca*, *Tyto alba*, *Ceryle rudis*, *Turdus* sp. ?, *Sturnus vulgaris*, *Petronia* cf. *petronia*

Det.: Tchernov

IRQ 3 Zawi Chemi Shanidar (Kurdistan)

Alt.: 765

Type: c

Source: Solecki 1977

Date: LP LG Protoneolithic 14C=10,870±300 BP

Fauna: *Gypaetus barbatus*, *Gyps fulvus*, *Haliaeetus albicilla*, *Otis tarda*

Det.: Wetmore; McGovern

Notes: also known as Zaw-e-Chami

IRQ 4 Nemrik (Kurdistan)

Type: o

Source: Bochenski 1995

Layer: Phase 1

Date: LP/Hol 10,250–9,950 BP

Fauna: *Otis tarda*

Layer: Phase 1–3

Date: LP/Hol 10,250–9,150 BP

Fauna: *Circus gallicus*, *Circus* cf. *cyaneus*, *Alectoris chukar*, *Francolinus francolinus*, *Pterocles alchata*, *Pterocles orientalis*, *Bubo bubo*

Det: Bochenski

[For map see p. 274.]

IRELAND

Almost all Irish sites are at least partly of Holocene age. Indeed the presence of *Meleagris gallopavo* indicates a post-1492 AD date for some of the remains. Only Ballybetagh bog (IR 2) is securely dated to the Pleistocene but the presence of Pleistocene mammals or, e. g., *Lagopus mutus* makes it clear that Pleistocene material is present at several other sites. Unfortunately most sites were dug early with little attention to stratigraphy (which seems in any case to have been absent or disturbed at several sites).

IR 1 Alice and Gwendolin Caves (Co. Clare)

Type: c

Sources: Bell 1915; Lambrecht 1933; Newton 1906; Wolf 1938–41

Layer: Upper

Date: Holocene ?

Fauna: *Anser albifrons* ?, *Anas platyrhynchos*, *Anas penelope*, *Aythya fuligula*, *Rallus aquaticus*, *Phasianus colchicus*?, *Gallus gallus*, *Pluvialis apricaria*?, *Columba palumbus*, *Dendrocopos major*, *Motacilla* sp.?, *Erithacus rubecula*, *Turdus merula*, *Turdus philomelos*, *Turdus pilaris*, *Turdus viscivorus*, *Turdus iliacus*, *Sturnus vulgaris*, *Corvus corax*, *Corvus corone/fragilegus*, *Pica pica*, *Passer domesticus*

Layer: Lower

Date: LP-Holocene ?

Fauna: *Anser anser*, *Anser albifrons*?, *Anas platyrhynchos*, *Lagopus lagopus*, *Gallus gallus*, *Tringa totanus*, *Erithacus rubecula*, *Turdus philomelos*, *Turdus iliacus*, *Turdus merula*, *Sturnus vulgaris*, *Corvus corone/fragilegus*

Det.: Newton

Notes: also known as Edenvale Caves

IR 2 Ballybetagh bog (Co. Dublin)

Type: o

Source: Stuart 1982

Date: LP LG Woodgrange interstadial

Fauna: *Anas* sp.

IR 3 Ballynamindra Cave (Co. Waterford)

Alt.: 22

Type: c

Sources: Bell 1915, 1922; Lambrecht 1933; Wolf 1938–41

Date: LP-Holocene

Fauna: *Ardea cinerea*, *Falco tinnunculus*, *Lagopus mutus*, *Lagopus lagopus*, *Tetrao tetrix*, *Fulica atra*, *Pinguinus impennis*

IR 4 Barntick Cave (Co. Clare)

Type: c

Sources: Bell 1915; Lambrecht 1933; Newton 1906; Wolf 1938–41

Layer: Upper

Date: probably Holocene

Fauna: *Podiceps cristatus*, *Anser anser*, *Tadorna tadorna*, *Anas platyrhynchos*, *Anas* sp., *Phasianus colchicus*?, *Gallus gallus*, *Crex crex*, *Rallus aquaticus*, *Vanellus vanellus*, *Turdus philomelos*, *Turdus iliacus*, *Sturnus vulgaris*, *Corvus corax*, *Corvus corone/frugilegus*

Layer: Lower

Date: probably Holocene ?

Fauna: *Anas platyrhynchos*, *Gallus gallus*

Det.: Newton

IR 5 Castlepook Cave (Co. Cork)

Alt.: 100

Type: c

Sources: Bell 1915; Lambrecht 1933; Newton 1918; Wolf 1938–41

Date: LP-Holocene

Fauna: *Cygnus* cf. *olor*, *Anser* cf. *anser*, *Anser* sp., *Anas penelope*, *Anas* cf. *platyrhynchos*, *Aythya marila*?, *Lagopus lagopus*, *Meleagris gallopavo*, *Coturnix coturnix*?, *Gallus gallus*, *Crex crex*, *Gallinula chloropus*, *Pluvialis apricaria*, *Larus fuscus*, *Alauda arvensis*, *Turdus merula*, *Turdus viscivorus*, *Corvus corone/frugilegus*, *Pica pica*

Det.: Newton

Notes: *Larus fuscus*, *Anser* sp. and *Anas* cf. *platyrhynchos*, found in lower levels together with Pleistocene mammals

IR 6 Catacomb Cave (Co. Clare)

Type: c

Sources: Bell 1915; Lambrecht 1933; Newton 1906; Wolf 1938–41

Layer: Upper

Date: probably Holocene

Fauna: *Gavia immer*, *Podiceps cristatus*, *Tachybaptus ruficollis*, *Cygnus* sp., *Anser albifrons*?, *Anser anser*, *Anser* sp., *Anas platyrhynchos*, *Anas penelope*, *Aythya ferina*, *Aythya fuligula*, *Meleagris gallopavo*, *Perdix perdix*, *Phasianus colchicus*?, *Gallus gallus*, *Grus grus*, *Rallus aquaticus*, *Fulica atra*, *Gallinula chloropus*, *Columba livia*, *Columba palumbus*, *Gallinago gallinago*, *Uria aalge*, *Tyto alba*, *Erithacus rubecula*, *Turdus viscivorus*, *Turdus philomelos*, *Turdus iliacus*, *Turdus merula*, *Sturnus vulgaris*, *Garrulus glandarius*, *Pica pica*, *Corvus monedula*, *Corvus corone/frugilegus*, *Corvus corax*, *Pyrrhula pyrrhula*

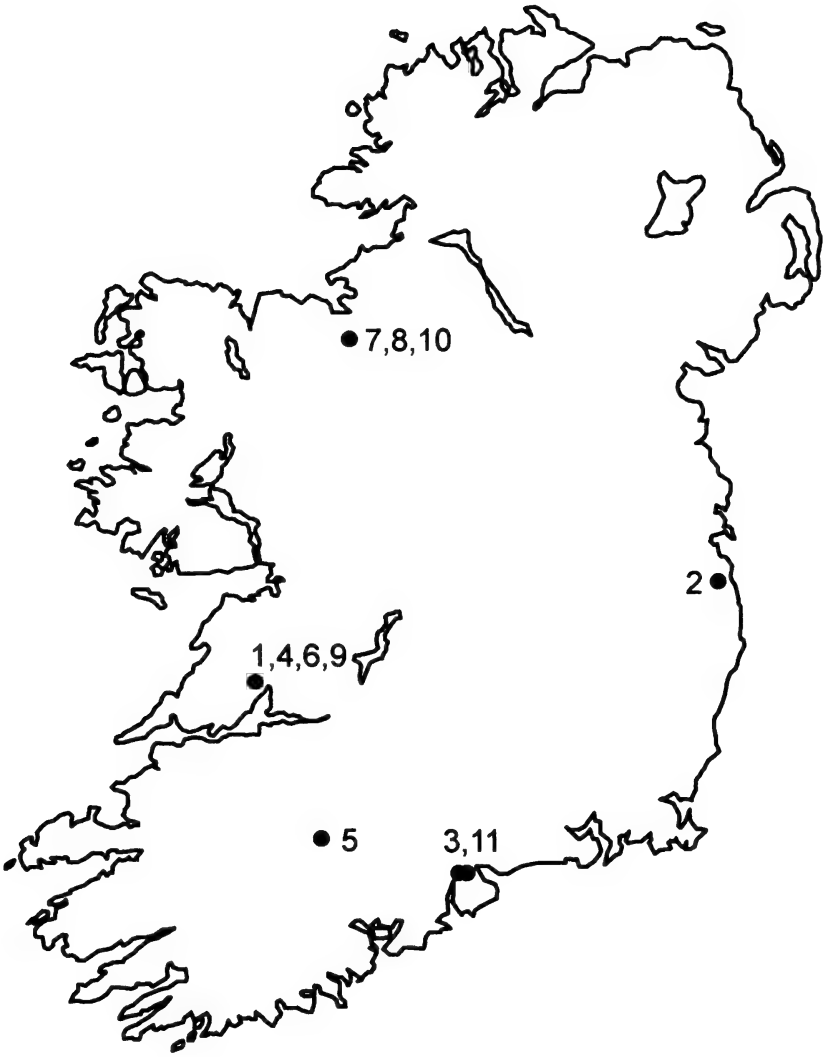
Layer: Lower

Date: probably Holocene ?

Fauna: *Podiceps cristatus*, *Anser anser*, *Anser albifrons*?, *Anas platyrhynchos*, *Anas penelope*, *Phasianus colchicus*?, *Gallus gallus*, *Rallus aquaticus*, *Grus grus*, *Vanellus vanellus*, *Gallinago gallinago*, *Columba palumbus*?, *Columba livia*, *Motacilla* sp. ?, *Erithacus rubecula*, *Turdus viscivorus*, *Turdus merula*, *Sturnus vulgaris*, *Corvus corone/frugilegus*

Det.: Newton

Notes: also known as Edenvale Cave



IRELAND (IR)

IR 7 Coffey Cave (Co. Sligo)

Type: c

Sources: Bell 1915; Lambrecht 1933; Newton 1903; Wolf 1938–41

Layer: 1

Date: probably Holocene

Fauna: *Anas platyrhynchos*, *Gallus gallus*, *Scolopax rusticola*, *Hirundo rustica*, *Turdus pilaris*, *Corvus monedula*

Layer: 2

Date: probably Holocene ?

Fauna: *Anas platyrhynchos*?, *Anas penelope*, *Crex crex*, *Scolopax rusticola*, *Tringa totanus*, *Turdus merula*, *Carduelis chloris*, *Fringilla coelebs*, *Pyrrhula pyrrhula*

Layer: 3

Date: LP LG ?

Fauna: *Podiceps cristatus*, *Anas platyrhynchos*, *Anas acuta*, *Mergus albellus*, *Lagopus* sp., *Pluvialis squatarola*?, *Alle alle*, *Turdus merula*, *Hirundo rustica*, *Passer domesticus* ?

Det.: Newton

Notes: also known as Keshcorran J Cave

IR 8 Keshcorran L Cave (Co. Sligo)

Type: c

Source: Gwynn et al. 1941

Layer: Brown

Date: LP

Fauna: *Anser* sp.?, *Lagopus* sp., *Turdus pilaris/viscivorus*, *Turdus merula*?

Det.: Stelfox

IR 9 Newhall Cave (Co. Clare)

Type: c

Sources: Bell 1915; Lambrecht 1933; Newton 1906; Wolf 1938–41

Layer: Upper

Date: probably Holocene

Fauna: *Gavia stellata* ?, *Phalacrocorax carbo*, *Ardea cinerea*, *Podiceps cristatus*, *Tachybaptus ruficollis*, *Anser albifrons* ?, *Anser anser*, *Anas acuta*, *Anas crecca*, *Anas platyrhynchos*, *Anas penelope*, *Aythya fuligula*, *Aythya ferina*, *Accipiter nisus*, *Meleagris gallopavo*, *Perdix perdix*, *Coturnix* sp. ?, *Phasianus colchicus* ?, *Gallus gallus*, *Grus grus*, *Rallus aquaticus*, *Crex crex*, *Vanellus vanellus*, *Scolopax rusticola*, *Alca torda*, *Columba livia*, *Columba palumbus*, *Dendrocygus major*, *Delichon urbica*, *Erithacus rubecula*, *Turdus philomelos*, *Turdus iliacus*, *Turdus merula*, *Garrulus glandarius*, *Pica pica*, *Corvus monedula*, *Corvus corone/frugilegus*, *Corvus corax*, *Sturnus vulgaris*, *Coccothraustes coccothraustes*?, *Pyrrhula pyrrhula*, *Emberiza citrinella*

Layer: Lower

Date: probably Holocene ?

Fauna: *Podiceps cristatus*, *Anser anser*, *Anser albifrons* ?, *Anas platyrhynchos*, *Phasianus colchicus* ?, *Gallus gallus*, *Gallinula chloropus*, *Vanellus vanellus*, *Gallinago*

gallinago, *Turdus philomelos*, *Turdus iliacus*, *Turdus merula*, *Corvus corone/*
frugilegus, *Corvus corax*

IR 10 Plunkett Cave (Co. Sligo)

Type: c

Sources: Bell 1915; Lambrecht 1933; Newton 1903; Wolf 1938–41

Layer: 1

Date: probably Holocene

Fauna: *Anser albifrons*, *Anas platyrhynchos*, *Anas penelope*, *Falco tinnunculus*,
Phasianus colchicus, *Gallus gallus*, *Meleagris gallopavo*, *Perdix perdix*, *Crex crex*
Motacilla sp., *Anthus pratensis*, *Saxicola rubetra*, *Erithacus rubecula*, *Turdus vis-*
civorus ?, *Turdus philomelos*, *Turdus iliacus*, *Turdus pilaris*, *Turdus merula*,
Hirundo rustica, *Carduelis chloris*, *Passer domesticus*, *Fringilla coelebs*, *Carduelis*
cannabina, *Garrulus glandarius*, *Corvus frugilegus*

Layer: 2

Date: LP-Holocene ?

Fauna: *Anser albifrons*, *Anas platyrhynchos*, *Anas penelope*, *Aythya marila*, *Melanitta*
nigra, *Lagopus* sp., *Erithacus rubecula*, *Saxicola rubetra*, *Turdus viscivorus*, *Turdus*
philomelos, *Turdus iliacus*, *Turdus pilaris*, *Turdus merula*, *Garrulus*
glandarius, *Carduelis cannabina*, *Pyrrhula pyrrhula*

Det.: Newton

Notes: also known as Keshcorran P Cave

IR 11 Shandon Cave (Co. Waterford)

Type: c

Sources: Bell 1915; Lambrecht 1933; Wolf 1938–41

Date: LP-Holocene

Fauna: *Gavia stellata*, *Cygnus columbianus*, *Anser fabalis*, *Branta leucopsis*, *Lagopus*
mutus, *Corvus corax*

Stored: Dublin

ISRAEL

IS 1 Abu Salem (AS) (Negev)

Alt.: 970

Type: o

Sources: Goring-Morris 1987; Henry 1989

Date: LP LG Harifian 14C=9,970±150–10,550±90 BP (several dates)

Fauna: *Struthio* sp., *Alectoris chukar*

Notes: eggshells (ostrich)

IS 2 Abu Usba (Mt Carmel)

Alt.: 140

Type: c

Sources: Bar-Yosef & Tchernov 1966; Stekelis & Haas 1952

Layer: Mesol. B?

Date: LP LG Natufian-Earliest Neolithic

Fauna: *Alectoris* cf. *graeca*, *Vanellus* cf. *vanellus*, *Columba* cf. *livia*, *Streptopelia* sp., *Merops* cf. *apiaster*, *Motacilla* cf. *alba*, *Pycnonotus* cf. *xanthopygos*, *Cercotrichas* cf. *galactotes*, *Oenanthe* cf. *oenanthe*, *Phoenicurus* cf. *ochruros*, *Luscinia* sp., *Luscinia* cf. *svecica*, *Turdus* spp., *Acrocephalus* cf. *schoenobaenus*, *Phylloscopus* cf. *collybita*, *Parus* cf. *major*, *Lanius* spp., *Sturnus* cf. *vulgaris*, *Passer* cf. *domesticus*, *Carduelis* cf. *carduelis*, *Serinus* sp.?, *Fringilla coelebs*, *Carduelis* cf. *chloris*, *Emberiza* sp.

Det.: Haas

IS 3 Azariq I (A I) (Negev)

Type: o

Source: Goring-Morris 1987

Date: LP Kebaran

Fauna: *Struthio* sp.

Notes: eggshells

IS 4 Ein Aqev East (D 34) (Negev)

Alt.: 390

Type: o

Source: Goring-Morris 1987

Date: LP Kebaran

Fauna: *Struthio camelus*

Det.: Tchernov

Notes: eggshells; also known as Ain Aqev

IS 5 Ein Aqev (D 31) (Negev)

Type: o

Sources: Tchernov 1976, 1979

Date: LP UP 14C=16,900–19,980 BP

Fauna: *Struthio camelus*

Det.: Tchernov

Notes: also known as Ain Aqev

IS 6 Ein Gev I (Galilee)

Alt.: -150

Type: o

Source: Davis 1974

Date: LP Late Kebaran 14C=15,700±415 BP

Fauna: *Cygnus* sp., *Anser* sp., *Buteo* sp., *Aquila* sp.

Det: Tchernov

IS 7 Erq El-Ahmar (Judea)

Type: o

Source: Pichon 1983

Date: LP LG Natufian ca. 12,000 BP

Fauna: *Alectoris chukar*

Det: Pichon ?

IS 8 Far'ah II (Negev)

Alt.: 84

Type: o

Sources: Gilead 1980; Gilead & Grigson 1984

Date: LP Mousterian

Fauna: *Struthio* sp., cf. *Otididae*

Det.: Tchernov

IS 9 Gilgal (West Bank)

Alt.: -235

Type: o

Source: Noy, Schuldenrein & Tchernov 1980

Date: LP/Hol PPNA 9,400-10,100 BP

Fauna: *Anser albifrons*, *Tadorna tadorna*, *Anas platyrhynchos*, *Anas* sp., *Buteo* cf. *buteo*, *Alectoris chukar*, *Vanellus spinosus*, *Columba livia*, *Streptopelia* sp., *Corvus corone*

Det.: Tchernov

IS 10 Hatula (Judea)

Alt.: 200

Type: o

Sources: Lamdan 1984; Pichon 1985

Layer: 2-5

Date: LP/Hol Natufian-PPNA ca. 11,000-9,000 BP

Fauna: *Podiceps cristatus*, *Pelecanus onocrotalus*, *Ardea cinerea*, *Egretta alba*, *Ciconia ciconia*, *Anser* sp., *Anas crecca*, *Anas platyrhynchos*, *Anas querquedula*, *Milvus migrans*, *Accipiter nisus*, *Accipiter gentilis*, *Buteo buteo*, *Buteo rufinus*, *Perdix* sp., *Alectoris chukar*, *Coturnix coturnix*, *Crex crex*, *Porzana* sp., *Tringa nebularia*, *Tringa* sp., *Gallinago* sp., *Scolopax rusticola*, *Tyto alba*, *Asio otus*, *Strix aluco*, *Corvus corone*, *Sylviidae* sp.

Det.: Pichon, Tchernov

Notes: also known as Hatoula

IS 11 Hayonim Cave (Galilee)

Alt.: 250

Type: c

Sources: Bar-Yosef & Tchernov 1966; Pichon 1984, 1989; Tchernov 1979, 1984

Layer: B

Date: LP LG Natufian ca. 10,700-12,400 BP

Fauna: *Buteo buteo*, *Gyps fulvus*, *Accipiter nisus*, *Milvus migrans*, *Aquila pomarina*, *Falco peregrinus*, *Alectoris chukar*, *Columba livia*, *Columba palumbus*, *Streptopelia* sp., *Athene noctua*, *Tyto alba*, *Apus affinis gallelejensis*, *Coracias* sp., *Galerida cristata*, *Hirundo rustica*, *Phoenicurus* sp., *Saxicola torquata*, *Luscinia megarhyn-*

chos, *Phylloscopus* sp., *Lanius senator*, *Sturnus vulgaris*, *Sturnus* sp., *Passer domesticus*, *Petronia petronia*, *Carduelis carduelis*, *Carduelis cannabina*, *Coccothraustes coccothraustes*, *Emberiza caesia*, *Miliaria calandra*

Det.: Tchernov

Notes: *Carduelis cannabina* not mentioned by Tchernov 1979

Layer: c

Date: LP Kebaran

Fauna: *Columba livia*, *Passer domesticus*

Det.: Tchernov

Layer: D

Date: LP Aurignacian 14C=16,240–29,980 BP

Fauna: *Passer domesticus*

Det.: Tchernov

Layer: E (upper)

Date: LP Mousterian

Fauna: *Passer domesticus*

Det.: Tchernov

Layer: E (lower)

Date: LP Mousterian

Fauna: *Passer domesticus*

Det.: Tchernov

Layer: ?

Date: LP LG Natufian

Fauna: *Anser* sp., *Anas platyrhynchos*, *Aquila pomarina*, *Milvus migrans*, *Buteo buteo*, *Falco tinnunculus*, *Falco peregrinus*, *Accipiter nisus*, *Accipiter* cf. *gentilis*, *Gyps fulvus*, *Alectoris chukar*, *Coturnix coturnix*, *Phasianus colchicus*, *Crex crex*, *Gallinula chloropus*, *Columba livia*, *Columba palumbus*, *Streptopelia* sp., *Athene noctua*, *Otus scops*, *Tyto alba*, *Asio* sp., *Apus affinis*, *Upupa epops*, *Alcedo atthis*, *Alauda arvensis*, *Melanocorypha calandra*, *Galerida cristata*, *Motacilla cinerea*, *Hirundo daurica*, *Hirundo* sp., *Hirundo rustica*, *Garrulus glandarius*, *Pyrhocorax pyrrhocorax*, *Pica pica*, *Corvus monedula*, *Sturnus vulgaris*, *Sturnus* sp., *Regulus* sp., *Turdus merula*, *Turdus philomelos*, *Monticola* sp., *Oenanthe* spp., *Phoenicurus* sp., *Saxicola torquata*, *Erithacus rubecula*, *Luscinia megarhynchos*, *Luscinia svecica*, *Luscinia* sp., *Sylvia* sp., *Sylvia hortensis*, *Sylvia melanocephala*, *Phylloscopus* sp., *Nectarinia osea*, *Lanius senator*, *Passer domesticus*, *Petronia petronia*, *Carduelis carduelis*, *Carduelis spinus*, *Carduelis chloris*, *Coccothraustes coccothraustes*, *Loxia curvirostra*, *Serinus serinus*, *Miliaria calandra*, *Emberiza caesia*

Det.: Tchernov

Layer: ?

Date: LP LG Natufian

Fauna: *Anser albifrons*, *Anser anser*, *Tadorna tadorna*, *Anas crecca*, *Anas platyrhynchos*, *Aythya nyroca*, *Aythya fuligula*, *Pandion haliaetus*, *Neophron percnopterus*, *Gyps fulvus*, *Aegyptius monachus*, *Accipiter nisus*, *Accipiter gentilis*, *Buteo buteo*, *Buteo rufinus*, *Buteo* sp., *Aquila pomarina*, *Aquila chrysaetos*, *Falco naumanni*, *Falco tinnunculus*, *Falco subbuteo*, *Perdix perdix*, *Alectoris chukar*, *Coturnix coturnix*, *Phasianus* cf. *colchicus*, *Grus grus*, *Rallus aquaticus*, *Crex crex*, *Porzana porzana*,

Fulica atra, *Tetrax tetrax*, *Otis tarda*, *Chlamydotis undulata*, *Vanellus vanellus*, *Pterocles alchata*, *Pterocles* sp., *Columba livia*, *Columba palumbus*, *Streptopelia senegalensis*, *Streptopelia* sp., *Tyto alba*, *Asio otus*, *Otus scops*, *Athene noctua*, *Strix aluco*, *Apus affinis*, *Alcedo atthis*, *Merops apiaster*, *Coracias garrulus*, *Upupa epops*, *Melanocorypha calandra*, *Melanocorypha* cf. *calandra*, *Alauda arvensis*, *Hirundo rustica*, *Hirundo daurica*, *Motacilla cinerea*, *Motacilla alba*, *Lanius senator*, *Lanius nubicus*, *Troglodytes troglodytes*, *Nectarinia osea*, *Saxicola torquata*, *Oenanthe oenanthe*, *Oenanthe hispanica*, *Monticola solitarius*, *Phoenicurus ochruros*, *Erithacus rubecula*, *Luscinia svecica*, *Luscinia megarhynchos*, *Turdus iliacus*, *Turdus philomelos*, *Turdus merula*, *Turdus* sp., *Prinia gracilis*, *Sylvia hortensis*, *Sylvia borin*, *Sylvia atricapilla*, *Sylvia melanocephala*, *Phylloscopus collybita*, *Phylloscopus sibilatrix*, *Phylloscopus* sp., *Regulus regulus*, *Muscicapa striata*, *Remiz pendulinus*, *Parus major*, *Sturnus vulgaris*, *Sturnus* sp., *Oriolus oriolus*, *Garrulus glandarius*, *Pica pica*, *Corvus monedula*, *Corvus corone*, *Miliaria calandra*, *Emberiza caesia*, *Fringilla coelebs*, *Serinus pusillus*, *Carduelis carduelis*, *Carduelis chloris*, *Carduelis spinus*, *Loxia curvirostra*, *Passer domesticus*, *Passer hispaniolensis*, *Passer* sp., *Petronia petronia*

Det.: Pichon

IS 12 Ira 10 (I 10) (Negev)

Alt.: 790 Type: o

Source: Goring-Morris 1987

Date: LP LG Natufian

Fauna: *Struthio* sp.

Notes: eggshells

IS 13 Ira 22 (I 22) (Negev)

Alt.: 670

Type: o

Source: Goring-Morris 1987

Date: LP LG Natufian

Fauna: *Struthio* sp.

Notes: eggshells

IS 14 Ira 23 (I 23) (Negev)

Type: o

Source: Goring-Morris 1987

Date: LP Mushabian

Fauna: *Struthio* sp.

Notes: eggshells

IS 15 Jericho (West Bank)

Alt.: -200

Type: o

Source: Tchernov 1993a

Date: LP/Hol PPNA 14C=9,300±100-10,300±100 BP

Fauna: *Ciconia nigra*, *Cygnus cygnus*, *Anas crecca*, *Anas platyrhynchos*, *Milvus milvus*, *Milvus migrans*, *Accipiter nisus*, *Accipiter gentilis*, *Aquila clanga*, *Aquila chrysaetos*, *Alectoris chukar*, *Coturnix coturnix*, *Chlamydotis undulata*, *Anthropoides virgo*, *Nymphenus arquata*, *Columba oenas*, *Corvus monedula*, *Corvus frugilegus*

Det.: Cowles ?

Notes: *Alectoris chukar* originally identified as *Alectoris barbara*

IS 16 Kebara (Galilee)

Alt.: 60

Type: c

Sources: Pichon & Tchernov 1987; Tchernov 1962, 1979

Layer: "Upper"

Date: LP Upper Levallois-Mousterian

Fauna: *Pelecanus onocrotalus*, *Ardea cinerea*, *Anser* sp., *Anas platyrhynchos*, *Pernis apivorus*, *Aegypius monachus*, *Aquila* sp., *Buteo buteo*, *Accipiter nisus*, *Falco tinnunculus*, *Alectoris chukar*, *Coturnix coturnix*, *Gallus gallus levantinus*, *Rallus aquaticus*, *Crex crex*, *Otus* sp., *Larus minutus*, *Larus* sp., *Columba* sp., *Columba livia*, *Columba palumbus*, *Columba oenas*, *Streptopelia turtur*, *Tyto alba*, cf. *Ceryle maxima*, *Halcyon smyrnensis*, *Coracias garrulus*, *Alauda arvensis*, *Galerida cristata*, *Melanocorypha calandra*, *Motacilla alba*, *Anthus pratensis*, *Cercotrichas galactotes*, *Phoenicurus phoenicurus*, *Phoenicurus ochruros*, *Luscinia svecica*, *Turdus merula*, *Turdus philomelos*, *Oenanthe finschii*, *Lanius excubitor*, *Pycnonotus barbatus*, *Oriolus oriolus*, *Oriolus* sp., *Sturnus vulgaris*, *Onychognathus tristrami*, *Corvus corone*, *Corvus corax*, *Corvus monedula*, *Pica pica*, *Miliaria calandra*, *Petronia petronia*

Layer: "Lower"

Date: LP Lower Levallois-Mousterian

Fauna: *Gyps fulvus*, *Columba palumbus*, *Columba* sp., *Columba livia*, *Columba oenas*, *Hirundo* sp., *Onychognathus tristrami*, *Sturnus vulgaris*, *Oriolus oriolus*, *Pica pica*, *Corvus monedula*, *Corvus corone*, *Garrulus glandarius*, *Pyrrhocorax graculus*, *Miliaria calandra*

Det.: Tchernov

Notes: Mousterian (layers 6–13) TL dated $48,300 \pm 1,500$ – $61,600 \pm 3,600$ BP; Tchernov (1962) also mentions *Bubo bubo* from this site

IS 17 Kebara + Qafzeh (Galilee)

Type: c

Source: Tchernov 1979

Date: LP Early-Mid Würm (50–110 KA BP)

Fauna: *Pelecanus onocrotalus*, *Ardea cinerea*, *Anas platyrhynchos*, *Anser* sp., *Aquila* sp., *Pernis apivorus*, *Buteo buteo*, *Falco tinnunculus*, *Accipiter nisus*, *Gyps fulvus*, *Aegypius monachus*, *Alectoris chukar*, *Coturnix coturnix*, *Phasianus colchicus*, *Crex crex*, *Rallus aquaticus*, *Otus* sp., *Larus minutus*, *Columba livia*, *Columba palumbus*, *Columba oenas*, *Streptopelia turtur*, *Tyto alba*, *Coracias garrulus*, *Halcyon smyrnensis*, cf. *Ceryle maxima*, *Alauda arvensis*, *Melanocorypha calandra*, *Galerida cristata*, *Anthus pratensis*, *Motacilla alba*, *Hirundo* sp., *Oriolus oriolus*, *Oriolus* sp., *Garrulus glandarius*, *Pyrrhocorax graculus*, *Pica pica*, *Corvus monedula*, *Corvus*

corone, *Corvus corax*, *Sturnus vulgaris*, *Sturnus* sp., *Onychognathus tristrami*, *Turdus merula*, *Turdus philomelos*, *Oenanthe finschii*, *Phoenicurus phoenicurus*, *Phoenicurus ochruros*, *Luscinia svecica*, *Cercotrichas galactotes*, *Lanius excubitor*, *Pycnonotus barbatus*, *Petronia petronia*, *Carduelis carduelis*, *Carduelis chloris*, *Fringilla coelebs*, *Coccothraustes coccothraustes*, *Miliaria calandra*

Det.: Tchernov

Notes: joint list for these two sites.

IS 18 Mallaha (Galilee)

Alt.: 85

Type: o

Sources: Pichon 1984, 1989; Valla 1988 (Pichon 1987)

Date: LP LG Natufian ca. 12,000–10,000 BP

Fauna: *Podiceps cristatus*, *Podiceps nigricollis*, *Tachybaptus ruficollis*, *Phalacrocorax carbo*, *Phalacrocorax pygmaeus*, *Ardea cinerea*, *Egretta garzetta*, *Ciconia ciconia*, *Cygnus* sp., *Anser erythropus*, *Anser anser*, *Tadorna ferruginea*, *Tadorna tadorna*, *Anas penelope*, *Anas crecca*, *Anas platyrhynchos*, *Anas* sp., *Anas acuta*, *Anas querquedula*, *Anas clypeata*, *Marmaronetta angustirostris*, *Aythya ferina*, *Aythya nyroca*, *Aythya fuligula*, *Aythya marila*, *Melanitta fusca*, *Bucephala clangula*, *Mergus albellus*, *Mergus merganser*, *Oxyura leucocephala*, *Pandion haliaetus*, *Buteo buteo*, *Buteo rufinus*, *Alectoris chukar*, *Coturnix coturnix*, *Grus grus*, *Rallus aquaticus*, *Gallinula chloropus*, *Porphyrio porphyrio*, *Fulica atra*, *Otis tarda*, *Tringa nebularia*, *Scolopax rusticola*, *Columba livia*, *Bubo bubo*, *Garrulus glandarius*, *Corvus monedula*, *Corvus corone*

Det.: Pichon

Notes: also known as Eynan and 'Ain Mallaha

IS 19 Me'arat Shovakh (Galilee)

Alt.: 100

Type: c

Sources: Binford 1966; Tomskey 1991

Date: LP Middle Palaeolithic, Mousterian

Fauna: cf. *Buteo* sp., *Streptopelia* sp., *Columba* cf. *livia*, *Coracias* sp., *Turdus* sp., *Sylvia* sp., *Sturnus vulgaris*, *Auripasser* sp., *Passer* cf. *domesticus*, *Petronia* sp., *Petronia petronia*, *Fringilla coelebs*, *Fringilla* sp., *Emberiza caesia*, cf. *Carduelis* sp.

Det.: Haas

Notes: also known as Mugharet esh-Shubbabiq

IS 20 Mugharet-el-Zuttiyeh (Galilee)

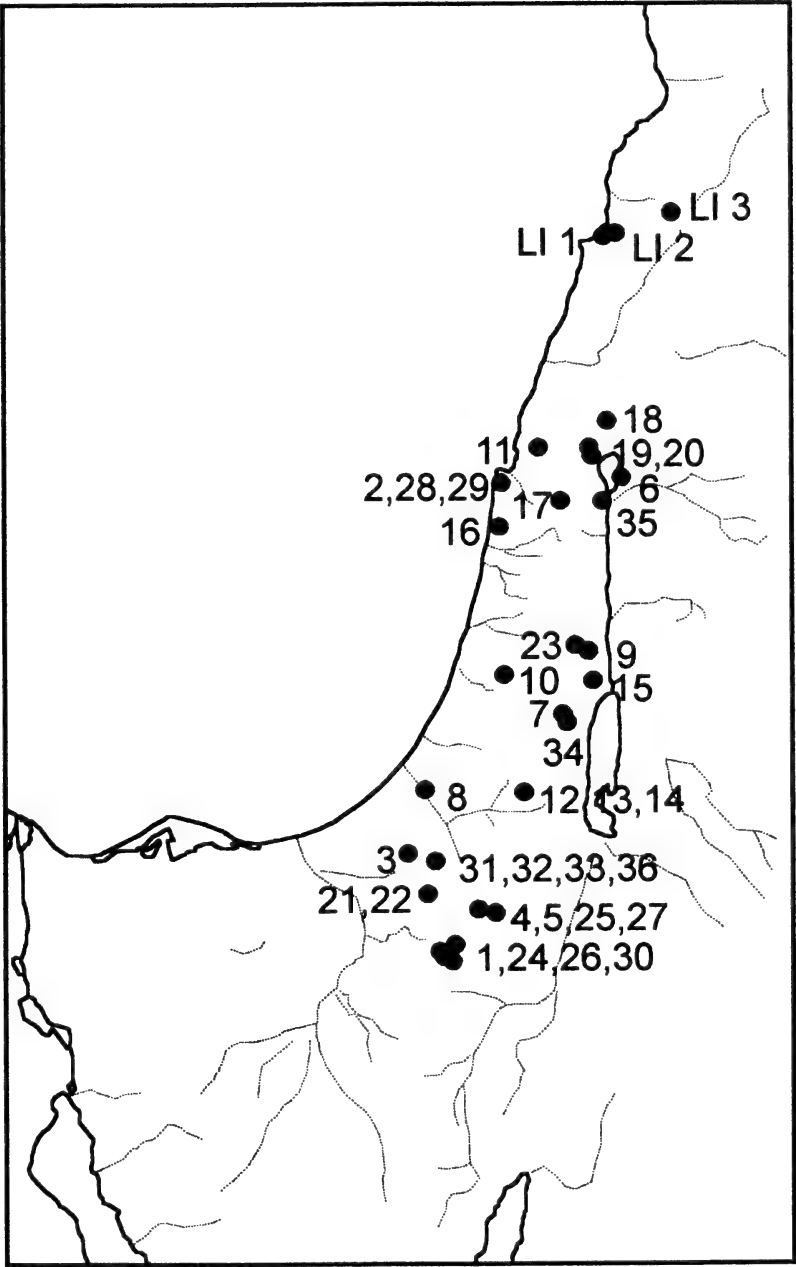
Alt.: -148

Type: c

Sources: Lambrecht 1933; Tchernov 1962; Wolf 1938–41 (Bate 1927)

Date: MPMPal TL 95–200 KA BP

Fauna: *Aquila* sp., *Phasianus hermoni*, *Coturnix coturnix*, *Columba livia*, *Apus melba*, *Apus* cf. *affinis*, *Pycnonotus xanthopygos*, *Sturnus vulgaris*,



ISRAEL (IS), LEBANON (LI)

Det.: Bate

Stored: British Museum (Natural History) ?

Notes: Acheuleo-Jabrudian dated to 96–148 KA; fauna is from below archaeological layers

IS 21 Nahal Nizzana XIV (NN XIV) (Negev)

Type: o

Source: Goring-Morris 1987

Date: LP Mushabian

Fauna: *Struthio* sp.

Notes: eggshells

IS 22 Nahal Rut XVII (NR XVII) (Negev)

Type: o

Source: Goring-Morris 1987

Date: LP Geometric Kebaran

Fauna: *Struthio* sp.

Notes: eggshells

IS 23 Netiv Hagdud (West Bank)

Alt.: –200

Type: o

Source: Tchernov 1993a

Date: LP/Hol PPNA 14C=9,600–10,180 BP

Fauna: *Leptoptilos crumeniferus*, *Ciconia ciconia*, *Anser albifrons*, *Tadorna tadorna*, *Anas querquedula*, *Anas platyrhynchos*, *Pernis apivorus*, *Milvus migrans*, *Circus* sp., *Accipiter* sp., *Buteo buteo*, *Buteo rufinus*, *Aquila pomarina*, *Aquila* sp., *Falco* spp., *Alectoris chukar*, *Francolinus francolinus*, *Ammoperdix heyi*, *Coturnix coturnix*, *Otis tarda*, *Fulica atra*, *Vanellus spinosus*, *Columba livia*, *Streptopelia decaocto*, *Athene noctua*, *Melanocorypha calandra*, *Galerida cristata*, *Pycnonotus xanthopygus*, *Lanius excubitor*, *Turdus merula*, *Onychognathus tristrami*, *Sturnus vulgaris*, *Pica pica*, *Corvus monedula*, *Corvus ruficollis*, *Corvus rhipidurus*, *Corvus corone*, cf. *Fringilla* sp., *Coccothraustes coccothraustes*, *Serinus* sp., *Passer domesticus*

Det.: Tchernov

IS 24 Ramat Harif (G8) (Negev)

Alt.: 980

Type: o

Source: Goring-Morris 1987

Date: LP LG Harifian 14C=10,100±100–10,500±100 BP (several dates)

Fauna: *Struthio* sp.

Notes: eggshells

IS 25 Rosh Ein Mor (D15) (Negev)

Alt.: 495

Type: o

Sources: Bar-Yosef 1989; Tchernov 1976

Date: LP MPal "Mousterian" 14C= >37,000, >44,000, >50,000 BP

Fauna: *Struthio camelus*

Det.: Tchernov

Notes: eggshells

IS 26 Rosh Horesha (RH) (Negev)

Alt.: 930

Type: o

Source: Goring-Morris 1987 (Butler et al. 1971)

Date: LP LG Late Natufian 14C=10,490–10,880 BP

Fauna: *Struthio camelus*, *Alectoris chukar*, *Columba livia*

Det: Tchernov

IS 27 Rosh-Zin, Site D16 (Negev)

Alt.: 525

Type: o

Sources: Goring-Morris 1987; Tchernov 1976, 1979

Date: LP LG Natufian

Fauna: *Struthio* sp.

Det.: Tchernov

Notes: eggshells

IS 28 Sefunim Cave (Mt Carmel)

Alt.: 125

Type: c

Source: Tchernov 1984b

Layer: 8–8a

Date: LP LG Upper/End-Palaeolithic 14C=12250 BP (layer 8a)

Fauna: *Columba livia*, *Columba palumbus*

Layer: 9–11

Date: LP UP "Aurignacian"

Fauna: *Aquila* sp., *Columba livia*, *Columba palumbus*, *Hirundo* sp.

Layer: 12

Date: LP Late Mousterian/EUP

Fauna: *Columba livia*

Layer: 13

Date: LP Mousterian

Fauna: *Carduelis carduelis*

Det.: Tchernov

IS 29 Sefunim Shelter (Mt Carmel)

Alt.: 100

Type: c

Source: Lamdan 1984

Layer: A

Date: LP/Hol Pre-Pottery Neolithic B

Fauna: *Struthio* sp., *Gyps fulvus* ?, *Falco* sp. ?, *Alectoris chukar*, *Alectoris graeca*,
Columba livia, *Passer domesticus* ?

Layer: B

Date: LP/Hol Pre-Pottery Neolithic B

Fauna: *Struthio* sp., *Columba livia*

Layer: c

Date: LP Mousterian

Fauna: *Alectoris chukar*

Det.: Tchernov

IS 30 Shluhat Harif (K3) (Negev)

Alt.: 970

Type: o

Source: Goring-Morris 1987

Date: LP LG Harifian

Fauna: *Struthio* sp.

Notes: eggshells

IS 31 Shunera IX (SH IX) (Negev)

Alt.: 320

Type: o

Source: Goring-Morris 1987

Date: LP LG Harifian

Fauna: *Struthio* sp.

Notes: eggshells

IS 32 Shunera VI (SH VI) (Negev)

Alt.: 320

Type: o

Source: Goring-Morris 1987

Date: LP LG Harifian

Fauna: *Struthio* sp.

Notes: eggshells

IS 33 Shunera XVI (SH XVI) (Negev)

Type: o

Source: Goring-Morris 1987

Date: LP Kebaran 14C=15,800±160, 16,100±150, 16,200±170

Fauna: *Struthio* sp.

Notes: eggshells

IS 34 Umm-Qatafa (Judea)

Alt.: 515

Type: c

Sources: Tchernov 1962, 1979; Vaufrey 1931b

Layer: F

Date: MP Tayacian 170–200 (140–170?) KA BP

Fauna: *Alectoris chukar*, *Columba livia*, *Tyto alba*, *Dendrocopos syriacus*, *Sturnus vulgaris*, *Fringilla coelebs*, *Carduelis chloris*

Det.: Tchernov

Layer: E2

Date: MP (Lower Acheulean) 170–200 (140–170?) KA BP

Fauna: *Columba livia*

Det.: Tchernov

Layer: E1

Date: MP (Middle Acheulean) 170–200 (140–170 ?) KA BP

Fauna: *Alectoris chukar*, *Ammoperdix heyi*, *Coturnix coturnix*, *Gallinula chloropus*, *Streptopelia turtur*, *Columba livia*, *Crex crex*, *Otus scopsps*, *Athene noctua*, *Clamator glandarius*, *Apus apus*, *Upupa epops*, *Melanocorypha calandra*, *Galerida cristata*, *Oenanthe* sp., *Cercotrichas galactotes*, *Phoenicurus* sp., *Erithacus rubecula*, *Phylloscopus* sp., *Sylvia* sp., *Lanius senator*, *Lanius nubicus*, *Petronia petronia*, *Passer domesticus*, *Passer moabiticus*, *Coccothraustes coccothraustes*, *Carduelis carduelis*, *Carduelis spinus*, *Fringilla coelebs*, *Carduelis chloris*, *Onychognathus tristrami*, *Sturnus* sp., *Sturnus vulgaris*, *Corvus corone*, *Corvus monedula*, *Corvus frugilegus*, *Miliaria calandra*

Det.: Tchernov

Layer: D2

Date: MP (Upper Acheulean) 170–200 (140–170?) KA BP

Fauna: *Aquila* sp., *Falco* sp., *Alectoris chukar*, *Columba* sp., *Columba livia*, *Crex crex*, *Alauda arvensis*, *Hirundo daurica*, *Motacilla alba*, *Motacilla cinerea*, *Motacilla flava*, *Oenanthe* spp., *Turdoides squamiceps*, *Lanius senator*, *Muscicapa striata*, *Petronia petronia*, *Coccothraustes coccothraustes*, *Carduelis carduelis*, *Sturnus vulgaris*, *Corvus corone*, *Corvus frugilegus*, *Miliaria calandra*

Det.: Tchernov

Layer: Uncertain

Date: MP 170–200 (140–170?) KA BP

Fauna: *Alectoris graeca*, *Coturnix coturnix*, *Columba livia*, *Athene noctua*, *Galerida cristata*, *Hirundo daurica*, *Motacilla* sp., *Turdus merula*, *Turdus* sp., *Lanius excubitor*, *Lanius senator*, *Pycnonotus barbatus*, *Petronia petronia*, *Carduelis* sp., *Passer hispaniolensis*, *Sturnus* sp., *Garrulus glandarius*, *Miliaria calandra*, *Carduelis* sp., *Carduelis carduelis*

Det.: Tchernov

Layer: Probably D-E

Date: MP "Acheuleen superieur"

Fauna: *Gyps fulvus*, *Gallus* sp.?, *Perdix* sp., *Columba oenas*, *Columba livia*, *Athene noctua*, *Garrulus glandarius*

Det.: Boule

Notes: Tchernov (1962) gives a partially different species list

IS 35 'Ubeidiya (Galilee)

Alt.: -205

Type: o

Sources: Tchernov 1968b, 1979, 1980

Layer: II-23

Date: EP ca. 1.4 MA BP

Fauna: *Podiceps cristatus*, *Podiceps auritus*, *Phalacrocorax africanus*, *Phalacrocorax carbo*, *Anhinga rufa*, *Tadorna tadorna*, *Anas crecca*, *Anas acuta*, *Anas penelope*, *Aythya* sp., *Milvus pygmaeus*, *Falco subbuteo*, *Falco* sp., *Aquila* sp., *Alectoris baryosefi*, *Francolinus* sp., *Rallus aquaticus*, *Porzana* spp., *Crex crex*, *Fulica stekelesi*, *Porphyrio porphyrio*, *Columba livia*, *Strix* cf. *butleri*, *Asio* cf. *capensis*, *Ketupa zeylonensis*, *Melanocorypha calandra*, *Melanocorypha gracilis*, *Alauda jordanica*, cf. *Calandrella* sp., *Motacilla alba*, *Motacilla* cf. *cinerea*, *Saxicola* cf. *torquata*, *Oenanthe* sp., *Cercomela* cf. *melanura*, *Turdus* sp., *Acrocephalus* sp., *Lanius excubitor*, *Lanius* sp., *Sturnus vulgaris*, *Sturnus* sp., *Pica pica*, *Corvus corax*, *Corvus corone*, *Corvus monedula*, *Parus* sp., *Petronia brevirostris*, *Fringilla coelebs*, *Carduelis* cf. *chloris*

Layer: II-36

Date: EP ca. 1.4 MA BP

Fauna: *Butorides* aff. *striatus*, *Ardea purpurea*, *Anas crecca*, *Aquila chrysaetos*

Layer: II-26

Date: EP ca. 1.4 MA BP

Fauna: *Anas acuta*, *Aquila chrysaetos*, *Aquila* sp., *Gallinula gigantea*

Layer: II-24

Date: EP ca. 1.4 MA BP

Fauna: *Podiceps cristatus*, *Anhinga rufa*?, *Butorides* aff. *striatus*, *Anser albifrons*, *Tadorna tadorna*, *Anas crecca*, *Anas acuta*, *Anas penelope*, *Aythya* sp., *Accipiter* cf. *gentilis*, *Falco* cf. *peregrinus*, *Alectoris baryosefi*, *Rallus aquaticus*, *Crex crex*, *Fulica stekelesi*, *Porphyrio porphyrio*, *Sterna hirundo*, *Columba livia*, *Streptopelia* sp., *Strix* cf. *butleri*, *Athene noctua*, *Melanocorypha calandra*, *Melanocorypha gracilis*, *Alauda jordanica*, cf. *Calandrella* sp., *Anthus* cf. *campestris*, *Anthus* cf. *pratensis*, *Motacilla alba*, *Oriolus* sp., *Sturnus vulgaris*, *Sturnus* sp., *Corvus corax*, *Corvus monedula*, *Pycnonotus barbatus*, *Sylvia* sp., *Turdus* sp., *Petronia brevirostris*, *Fringilla coelebs*, *Carduelis* sp., *Coccothraustes coccothraustes*, *Emberiza* sp.

Layer: III-12

Date: EP ca. 1.4 MA BP

Fauna: *Milvus pygmaeus*, *Fulica stekelesi*, *Melanocorypha calandra*, *Alauda jordanica*, *Sturnus vulgaris*, *Turdus* sp., *Petronia brevirostris*, *Fringilla coelebs*

Det: Tchernov

Notes: II-26=I-15

IS 36 Shunera III (Negev)

Type: o

Source: Byrd 1994

Date: LP Geometric Kebaran

Fauna: *Struthio* sp.

Notes: Eggshells

ITALY**IT 1 Alghero (Sardegna)**

Sources: Kotsakis 1980; Malatesta & Settepassi 1954

Date: LP

Fauna: *Cygnus* cf. *olor*, *Anas querquedula*, *Anas platyrhynchos*, *Gypaetus barbatus*, *Aquila chrysaetos*, *Coturnix coturnix*, *Gallinago gallinago*, *Scolopax rusticola*, *Columba livia*, *Streptopelia turtur*, *Bubo* cf. *bubo*, *Turdus merula*, *Turdus* sp., *Garrulus glandarius* cf. *ichnusae*, *Pyrhcorax pyrrhcorax*

IT 2 Archi (Calabria)

Alt.: 90

Type: o

Sources: Ascenzi & Segre 1971a,b; Cassoli 1980; Cassoli & Segre 1988

Layer: M

Date: LP Mousterian "Würm II" 14C > 40 000 BP

Fauna: *Sula bassana*, *Pinguinus impennis***IT 3 Arene Candide (Liguria)**

Alt.: 89

Type: c

Sources: Bartolomei et al. 1979; Cardini 1946; Cassoli 1980; Lambrecht 1933, Morelli 1891; Wolf 1938–41 (Issel 1878, 1892)

Layer: Inf.

Date: LP "Epigravettien ancien"

Fauna: *Nyctea scandiaca*?, *Surnia ulula*, *Pyrhcorax graculus*, *Pyrhcorax pyrrhcorax*

Det.: Cardini

Date: LP

Fauna: *Gavia stellata*, *Phalacrocorax carbo* *Phalacrocorax aristotelis*?, *Sula bassana*, *Plegadis falcinellus*, *Ixobrychus minutus*, *Anas platyrhynchos*, *Anas clypeata*?, *Melanitta nigra*, *Accipiter nisus*, *Buteo buteo*, *Haliaeetus albicilla*, *Falco naumanni*, *Falco tinnunculus*, *Lagopus mutus*, *Lagopus lagopus*, *Tetrao tetrix*, *Alectoris rufa*, *Alectoris graeca*, *Perdix perdix*, *Gallus* sp.?, *Coturnix coturnix*, *Phasianus colchicus*, *Rallus aquaticus*, *Grus grus*, *Crex crex*, *Pluvialis apricaria*, *Scolopax rusticola*, *Larus hyperboreus*, *Larus marinus*, *Larus ridibundus*, *Columba oenas*, *Columba palumbus*, *Columba livia*, *Strix aluco*, *Bubo bubo*, *Asio flammeus*, *Asio otus*, *Picidae* sp., *Alauda arvensis*, *Delichon urbica*, *Turdus merula*, *Turdus migratorius*, *Turdus philomelos*, *Turdus pilaris*, *Turdus viscivorus*, *Sturnus vulgaris*, *Sturnus roseus*,

Corvus frugilegus, *Corvus monedula*, *Corvus* sp., *Garrulus glandarius*, *Pica pica*, *Pyrrhonorax graculus*, *Pyrrhonorax pyrrhonorax*, *Fringilla coelebs*, *Fringilla montifringilla*, *Loxia curvirostra*, *Passer italiae*, *Passer montanus*, *Turdus iliacus*, *Coccothraustes coccothraustes*, *Miliaria calandra*, *Emberiza cia*, *Emberiza cirius*, *Emberiza citrinella*, *Emberiza schoeniclus*

Notes: possibly *Pyrrhonorax graculus* ?

Layer: M1

Date: LP LG Tardigravettian 14C=10,910±90 BP (M1/2)

Fauna: *Cygnus cygnus*, *Anser albifrons*, *Anas platyrhynchos*, *Anas penelope*, *Netta rufina*, *Mergus merganser*, *Buteo buteo*, *Buteo lagopus*, *Aquila chrysaetos*, *Falco subbuteo*, *Falco eleonora*, *Falco tinnunculus*, *Lagopus lagopus*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Crex crex*, *Otis tarda*, *Larus ichthyaetus*, *Columba livia*, *Columba palumbus*, *Columba oenas*, *Bubo bubo*, *Athene noctua*, *Strix aluco*, *Asio otus*, *Caprimulgus europaeus*, *Hirundo rupestris*, *Coccothraustes coccothraustes*, *Pica pica*, *Garrulus glandarius*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Corvus monedula*, *Corvus corax*

Layer: M2

Date: LP LG Tardigravettian 14C=10,910±90 BP (M1/2)

Fauna: *Botaurus stellaris*, *Cygnus cygnus*, *Anser albifrons*, *Anas platyrhynchos*, *Netta rufina*, *Buteo buteo*, *Circus macrourus*, *Falco subbuteo*, *Falco eleonora*, *Falco tinnunculus*, *Tetrao urogallus*, *Tetrao tetrix*, *Lagopus lagopus*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Crex crex*, *Otis tarda*, *Columba livia*, *Columba oenas*, *Columba palumbus*, *Otus scops*, *Athene noctua*, *Strix aluco*, *Asio otus*, *Aegolius funereus*, *Hirundo rupestris*, *Turdus pilaris*, *Fringilla coelebs*, *Pyrrhonorax pyrrhonorax*, *Coccothraustes coccothraustes*, *Montifringilla nivalis*, *Garrulus glandarius*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Corvus corone*, *Corvus corax*

Layer: M3

Date: LP LG Tardigravettian 14C=11,750±95 BP (M3/4)

Fauna: *Podiceps auritus*, *Cygnus cygnus*, *Anser albifrons*, *Aythya ferina*, *Mergus merganser*, *Buteo buteo*, *Circus macrourus*, *Falco eleonora*, *Falco tinnunculus*, *Lagopus mutus*, *Lagopus lagopus*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Crex crex*, *Otis tarda*, *Pluvialis apricaria*, *Pluvialis squatarola*, *Glareola pratincola*, *Columba livia*, *Columba palumbus*, *Columba oenas*, *Streptopelia turtur*, *Strix aluco*, *Asio otus*, *Aegolius funereus*, *Caprimulgus europaeus*, *Picus canus*, *Hirundo rupestris*, *Turdus pilaris*, *Turdus viscivorus*, *Fringilla coelebs*, *Carduelis chloris*, *Pinicola enucleator*, *Loxia curvirostra*, *Pyrrhula pyrrhula*, *Montifringilla nivalis*, *Pica pica*, *Garrulus glandarius*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Corvus monedula*

Layer: M4

Date: LP LG Tardigravettian 14C=11,750±95 BP (M3/4)

Fauna: *Cygnus cygnus*, *Anas platyrhynchos*, *Netta rufina*, *Falco subbuteo*, *Tetrao tetrix*, *Lagopus mutus*, *Lagopus lagopus*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Crex crex*, *Fulica atra*, *Otis tarda*, *Calidris ferruginea*, *Glareola pratincola*, *Columba livia*, *Columba palumbus*, *Columba oenas*, *Otus scops*, *Strix aluco*, *Aegolius funereus*, *Hirundo rupestris*, *Turdus pilaris*, *Fringilla coelebs*, *Pyrrhula pyrrhula*, *Coccothraustes coccothraustes*, *Montifringilla nivalis*, *Pica pica*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Corvus monedula*

Layer: M5

Date: LP LG Tardigravettian

Fauna: *Anas platyrhynchos*, *Mergus merganser*, *Buteo lagopus*, *Falco eleonora*, *Tetrao tetrix*, *Lagopus mutus*, *Lagopus lagopus*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Crex crex*, *Otis tarda*, *Calo cinerea*, *Pinguinus impennis*, *Columba livia*, *Columba oenas*, *Strix aluco*, *Asio otus*, *Aegolius funereus*, *Caprimulgus europaeus*, *Eremophila alpestris*, *Hirundo rupestris*, *Turdus viscivorus*, *Turdus pilaris*, *Plectrophenax nivalis*, *Carduelis chloris*, *Pinicola enucleator*, *Pyrhula pyrrhula*, *Montifringilla nivalis*, *Garrulus glandarius*, *Pyrhacorax pyrrhacorax*, *Pyrhacorax graculus*

Layer: P1

Date: LP Ancient Epigravettian 14C=18,560±210 BP

Fauna: *Aquila chrysaetos*, *Circus cyaneus*, *Falco eleonora*, *Falco tinnunculus*, *Tetrao tetrix*, *Lagopus mutus*, *Lagopus lagopus*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Crex crex*, *Sterna paradisaea*, *Fratercula arctica*, *Columba livia*, *Columba palumbus*, *Columba oenas*, *Nyctea scandiaca*, *Strix aluco*, *Strix cf. nebulosa*, *Picus canus*, *Melanocorypha cf. maxima*, *Eremophila alpestris*, *Lullula arborea*, *Hirundo rupestris*, *Prunella collaris*, *Turdus viscivorus*, *Turdus pilaris*, *Pyrhacorax pyrrhacorax*, *Pyrhacorax graculus*, *Corvus monedula*, *Carduelis chloris*, *Carduelis cannabina*, *Pinicola enucleator*, *Loxia pytyopsittacus*, *Loxia curvirostra*, *Loxia leucoptera*, *Pyrhula pyrrhula*, *Coccothraustes coccothraustes*, *Montifringilla nivalis*, *Petronia petronia*

Layer: P2

Date: LP Ancient Epigravettian

Fauna: *Falco eleonora*, *Falco tinnunculus*, *Lagopus mutus*, *Lagopus lagopus*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Uria aalge*, *Columba livia*, *Columba oenas*, *Nyctea scandiaca*, *Melanocorypha cf. maxima*, *Eremophila alpestris*, *Hirundo rupestris*, *Prunella collaris*, *Turdus viscivorus*, *Turdus pilaris*, *Turdus torquatus*, *Plectrophenax nivalis*, *Carduelis chloris*, *Carduelis flammea*, *Carduelis cannabina*, *Loxia curvirostra*, *Montifringilla nivalis*, *Pica pica*, *Pyrhacorax pyrrhacorax*, *Pyrhacorax graculus*

Layer: P3

Date: LP Ancient Epigravettian

Fauna: *Falco eleonora*, *Falco tinnunculus*, *Lagopus mutus*, *Lagopus lagopus*, *Alectoris graeca*, *Perdix perdix*, *Uria aalge*, *Columba livia*, *Columba oenas*, *Asio flammeus*, *Eremophila alpestris*, *Lullula arborea*, *Hirundo rupestris*, *Zoothera dauma*, *Plectrophenax nivalis*, *Fringilla coelebs*, *Carduelis chloris*, *Carduelis cannabina*, *Montifringilla nivalis*, *Pyrhacorax pyrrhacorax*, *Pyrhacorax graculus*

Layer: P4

Date: LP Ancient Epigravettian

Fauna: *Podiceps auritus*, *Buteo lagopus*, *Pandion haliaetus*, *Falco cf. rusticolus*, *Falco eleonora*, *Falco tinnunculus*, *Tetrao tetrix*, *Lagopus mutus*, *Lagopus lagopus*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Gallinago cf. solitarius*, *Calidris canutus*, *Uria aalge*, *Alca torda*, *Columba livia*, *Columba palumbus*, *Columba oenas*, *Nyctea scandiaca*, *Asio flammeus*, *Melanocorypha cf. maxima*, *Eremophila alpestris*, *Lullula arborea*, *Hirundo rupestris*, *Prunella collaris*, *Zoothera dauma*, *Turdus viscivorus*, *Plectrophenax nivalis*, *Fringilla coelebs*, *Carduelis chloris*,

Carduelis cannabina, *Pinicola enucleator*, *Loxia pytyopsittacus*, *Loxia curvirostra*, *Pyrrhula pyrrhula*, *Montifringilla nivalis*, *Petronia petronia*, *Pica pica*, *Nucifraga caryocatactes*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*

Layer: P5

Date: LP Ancient Epigravettian

Fauna: *Puffinus puffinus*, *Buteo lagopus*, *Falco eleonora*, *Falco tinnunculus*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Uria aalge*, *Fratercula arctica*, *Columba palumbus*, *Columba oenas*, *Columba livia*, *Nyctea scandiaca*, *Surnia ulula*, *Strix cf. nebulosa*, *Asio flammeus*, *Aegolius funereus*, *Apus apus*, *Picus canus*, *Eremophila alpestris*, *Lullula arborea*, *Hirundo rupestris*, *Zoothera dauma*, *Turdus viscivorus*, *Turdus pilaris*, *Plectrophenax nivalis*, *Fringilla coelebs*, *Carduelis chloris*, *Carduelis cannabina*, *Montifringilla nivalis*, *Sturnus vulgaris*, *Pica pica*, *Nucifraga caryocatactes*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*, *Corvus corax*

Layer: P6

Date: LP Ancient Epigravettian

Fauna: *Cygnus cygnus*, *Melanitta nigra*, *Buteo lagopus*, *Aquila chrysaetos*, *Falco tinnunculus*, *Lagopus mutus*, *Lagopus lagopus*, *Tetrao tetrix*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Crex crex*, *Charadrius morinellus*, *Charadrius alexandrinus*, *Fratercula arctica*, *Columba livia*, *Columba palumbus*, *Columba oenas*, *Nyctea scandiaca*, *Athene noctua*, *Eremophila alpestris*, *Lullula arborea*, *Hirundo rupestris*, *Prunella collaris*, *Turdus viscivorus*, *Plectrophenax nivalis*, *Carduelis chloris*, *Carduelis carduelis*, *Carduelis cannabina*, *Pinicola enucleator*, *Pyrrhula pyrrhula*, *Montifringilla nivalis*, *Pica pica*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*, *Corvus monedula*

Layer: P7

Date: LP Ancient Epigravettian

Fauna: *Podiceps auritus*, *Calonectris diomedea*, *Anas platyrhynchos*, *Anas crecca*, *Anas penelope*, *Melanitta nigra*, *Mergus albellus*, *Buteo lagopus*, *Circus cyaneus*, *Falco eleonora*, *Falco vespertinus*, *Falco tinnunculus*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Tringa totanus*, *Tringa glareola*, *Gallinago cf. solitaria*, *Calidris canutus*, *Pluvialis squatarola*, *Stercorarius pomarinus*, *Sterna paradisaea*, *Uria aalge*, *Columba livia*, *Columba palumbus*, *Columba oenas*, *Nyctea scandiaca*, *Surnia ulula*, *Athene noctua*, *Strix aluco*, *Asio otus*, *Asio flammeus*, *Aegolius funereus*, *Picus canus*, *Eremophila alpestris*, *Lullula arborea*, *Hirundo rupestris*, *Cinclus cinclus*, *Prunella collaris*, *Zoothera dauma*, *Turdus viscivorus*, *Turdus pilaris*, *Plectrophenax nivalis*, *Fringilla coelebs*, *Carduelis chloris*, *Carduelis cannabina*, *Pinicola enucleator*, *Loxia curvirostra*, *Pyrrhula pyrrhula*, *Montifringilla nivalis*, *Petronia petronia*, *Pica pica*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*, *Corvus corax*

Layer: P8

Date: LP Ancient Epigravettian

Fauna: *Podiceps auritus*, *Anas crecca*, *Mergus albellus*, *Buteo lagopus*, *Circus pygargus*, *Falco eleonora*, *Falco vespertinus*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Charadrius morinellus*, *Sterna paradisaea*, *Columba livia*, *Columba palumbus*, *Columba oenas*, *Asio flammeus*, *Picus canus*, *Eremophila alpestris*, *Lullula arborea*, *Hirundo ru-*

pestris, *Turdus viscivorus*, *Plectrophenax nivalis*, *Fringilla coelebs*, *Carduelis chloris*, *Carduelis flammea*, *Carduelis cannabina*, *Pinicola enucleator*, *Pyrrhula pyrrhula*, *Montifringilla nivalis*, *Sturnus vulgaris*, *Pica pica*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*

Layer: P9

Date: LP Ancient Epigravettian

Fauna: *Phalacrocorax aristotelis*, *Branta bernicla*, *Anas penelope*, *Melanitta nigra*, *Bucephala clangula*, *Mergus serrator*, *Accipiter gentilis*, *Buteo lagopus*, *Aquila chrysaetos*, *Circus cyaneus*, *Circus aeruginosus*, *Falco eleonora*, *Falco tinnunculus*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Crex crex*, *Tringa totanus*, *Tringa glareola*, *Gallinago cf. solitaria*, *Calidris canutus*, *Pluvialis squatarola*, *Charadrius morinellus*, *Sterna paradisaea*, *Uria aalge*, *Alca torda*, *Fratercula arctica*, *Columba livia*, *Columba palumbus*, *Columba oenas*, *Cuculus cf. canorus*, *Nyctea scandiaca*, *Athene noctua*, *Strix aluco*, *Strix cf. nebulosa*, *Asio otus*, *Asio flammeus*, *Aegolius funereus*, *Picus canus*, *Eremophila alpestris*, *Lullula arborea*, *Hirundo rupestris*, *Prunella collaris*, *Zoothera dauma*, *Turdus viscivorus*, *Turdus pilaris*, *Plectrophenax nivalis*, *Fringilla coelebs*, *Carduelis chloris*, *Carduelis flammea*, *Carduelis cannabina*, *Pinicola enucleator*, *Loxia curvirostra*, *Pyrrhula pyrrhula*, *Montifringilla nivalis*, *Petronia petronia*, *Sturnus vulgaris*, *Pica pica*, *Nucifraga caryocatactes*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*

Layer: P10

Date: LP Ancient Epigravettian

Fauna: *Phalacrocorax aristotelis*, *Mergus merganser*, *Buteo lagopus*, *Falco eleonora*, *Falco tinnunculus*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Calidris canutus*, *Columba livia*, *Columba palumbus*, *Columba oenas*, *Athene noctua*, *Aegolius funereus*, *Picus canus*, *Eremophila alpestris*, *Lullula arborea*, *Hirundo rupestris*, *Zoothera dauma*, *Turdus viscivorus*, *Turdus pilaris*, *Plectrophenax nivalis*, *Carduelis chloris*, *Carduelis cannabina*, *Pinicola enucleator*, *Loxia curvirostra*, *Montifringilla nivalis*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*

Layer: P11

Date: LP Ancient Epigravettian

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Columba livia*, *Columba oenas*, *Picus canus*, *Lullula arborea*, *Anthus trivialis*, *Zoothera dauma*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*

Layer: P12

Date: LP Ancient Epigravettian

Fauna: *Falco eleonora*, *Falco vespertinus*, *Perdix perdix*, *Columba livia*, *Columba oenas*, *Hirundo rupestris*, *Turdus viscivorus*, *Turdus pilaris*, *Montifringilla nivalis*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*

Layer: P13

Date: LP Ancient Epigravettian

Fauna: *Anas penelope*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Tringa glareola*, *Picus canus*, *Eremophila alpestris*, *Lullula arborea*, *Cinclus cinclus*, *Turdus viscivorus*, *Turdus pilaris*, *Montifringilla nivalis*, *Petronia petronia*, *Pyrrhonorax graculus*

IT 4 Barma Grande (Liguria)

Type: c

Source: Cassoli 1980 (Bulgarelli 1974)

Date: LP Mousterian

Fauna: *Fratercula arctica***IT 5 Buca Tana (Lucca)**

Alt.: 70

Type: c

Sources: Lambrecht 1933; Wolf 1938–41

Fauna: *Gallus gallus*, *Columba palumbus*, *Strix aluco*, *Otus scops*, *Turdus merula*, *Turdus pilaris*, *Erithacus rubecula*, *Garrulus glandarius*

Det.: Del Campana

IT 6 Buca dei Ladri (Pisa)

Alt.: 40

Type: c

Source: Bianucci 1980

Date: LP

Fauna: *Anas* sp., *Aquila* sp., *Columba* sp., *Corvus* sp**IT 7 Buca del Bersaglieri (Liguria)**

Type: c

Sources: Cassoli 1980; Del Campana 1928; Lambrecht 1933; Wolf 1938–41 (Regalia 1900)

Fauna: *Puffinus puffinus yelkouan*, *Puffinus puffinus*, *Phalacrocorax aristotelis*, *Ardea purpurea*, *Ardeola ralloides*, *Egretta garzetta*, *Ixobrychus minutus*, *Anas querquedula*, *Falco* sp., *Alectoris graeca*, *Coturnix coturnix*, *Rallus aquaticus*, *Crex crex*, *Gallinula chloropus*, *Numenius* sp., *Scolopax rusticola*, *Larus ridibundus*, *Sterna paradisaea*, *Chlidonias* sp., *Columba livia*, *Columba oenas*, *Columba palumbus*, *Streptopelia turtur*, *Apus melba*, *Upupa epops*, *Cuculus canorus*, *Caprimulgus europaeus*, *Hirundo* sp., *Delichon urbica*, *Turdus merula*, *Corvus monedula*, *Pyrrhonorax graculus*

Det.: Regalia

Notes: it seems likely that the deposits are at least partly Holocene; *Rattus rattus* was reported from this site**IT 8 Buca del Tasso (Toscana)**

Alt.: 415

Type: c

Sources: Cassoli 1980; Del Campana 1928; Lambrecht 1933; Vaufrey 1928; Wolf 1938–41 (Del Campana 1921a, 1922)

Layer: D I (=1)

Date: LP Mousterian

Fauna: *Alectoris graeca*, *Strix aluco*, *Turdus philomelos*, *Garrulus glandarius*, *Pica pica*, *Coccothraustes coccothraustes*

Layer: D II(=3)

Date: LP Mousterian

Fauna: *Lagopus mutus*, *Tetrao urogallus*

Det.: Del Campana

IT 9 Buca d'Equi (Lucca)

Alt.: 350

Type: c

Sources: Del Campana 1928; Lambrecht 1933; Wolf 1938–41 (Regalia 1911)

Fauna: *Anas penelope*, *Falco subbuteo*, *Falco tinnunculus*, *Buteo buteo*, *Aquila chrysaetos*, *Haliaeetus albicilla*, *Pandion haliaetus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Perdix perdix*, *Gallus* sp., *Columba livia*, *Grus grus*, *Numenius tenuirostris*, *Strix aluco*, *Otus scops*, *Bubo bubo*, *Asio flammeus*, *Apus melba*, *Hirundo rupestris*, *Prunella collaris*, *Turdus merula*, *Turdus philomelos*, *Luscinia luscinia*, *Corvus corax*, *Corvus corone*, *Corvus frugilegus*, *Pica pica*, *Pyrrhocorax pyrrhocorax*, *Fringilla coelebs*, *Passer italiae*

Det: Regalia

Notes: also known as Caverna di Equi

IT 10 Buco del Quai (Brescia)

Alt.: 230

Type: c

Source: Cadeo 1951

Date: LP ?

Fauna: *Falco peregrinus*, *Tetrao urogallus*, *Perdix perdix*, *Columba livia*, *Asio otus*

Det.: Cadeo

Notes: may be Holocene

IT 11 Bus de la Fanta (Verona)

Type: c

Source: Bon et al. 1991

Date: LP/Hol Latest LP/Earliest Hol.

Fauna: *Columba* sp., *Turdus* sp.

Stored: Museo Civico di Storia Naturale di Verona

Notes: also known as Bus del Termine

IT 12 Cagliari (Sardegna)

Type: o

Source: Fischer & Mauersberger 1989

Date: LP ?

Fauna: *Anas* sp., *Passer* sp.

Stored: Museum für Naturkunde der Humboldt-Universität zu Berlin

IT 13 Cala Genovesi a Levanzo (Sicilia)

Type: c

Source: Cassoli & Tagliacozzi 1982

Layer: 2 tag. 3

Date: LP ? Mesolithic

Fauna: *Puffinus puffinus*, *Calonectris diomedea*, *Accipiter gentilis*, *Coturnix coturnix*, *Columba oenas*

Layer: 2 tag. 4

Date: LP ? Mesolithic

Fauna: *Puffinus puffinus*, *Calonectris diomedea*, *Ardea purpurea*, *Anser albifrons*, *Anas crecca*, *Accipiter gentilis*, *Circus cyaneus*, *Coturnix coturnix*, *Grus grus*, *Fulica atra*, *Otis tarda*, *Columba oenas*, *Asio flammeus*, *Corvus corax*

Layer: 3 tag. 5

Date: LP Epigravettian 14C=11180±120

Fauna: *Calonectris diomedea*, *Falco peregrinus*, *Alectoris graeca*, *Otis tarda*, *Columba oenas*, *Coracias garrulus*

Det.: Cassoli

Notes: also known as Grotta di Levanzo, Cala dei Genovesi

IT 14 Cala della Calcina (Sardegna)

Sources: Kotsakis 1980; Malatesta & Suriano 1970

Date: LP Post-Tyrrhenian

Fauna: *Gavia* sp., *Phalacrocorax aristotelis*, *Ardea* sp., *Anser* sp., *Branta* sp., *Anas* sp., *Gypaetus barbatus*, *Aegypius monachus*, *Aquila chrysaetos*, *Milvus milvus*, *Buteo buteo*, *Circus macrourus*, *Circus* cf. *cyaneus*, *Falco peregrinus*, *Falco tinnunculus*, *Limosa limosa*, *Larus* sp., *Columba livia*, *Tyto alba*, *Bubo bubo*, *Turdus* sp., *Sturnus vulgaris*, *Corvus corax*, *Corvus corone*, *Corvus frugilegus*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*

Det.: Cardini; Cassoli; Suriano

IT 15 Cala di Luna (Sardegna)

Sources: Kotsakis 1980; Mourer-Chauviré & Weesie 1986

Date: LP "post-tirreniano"

Fauna: *Aquila chrysaetos*, *Bubo insularis*

Det.: Mourer-Chauviré

Notes: also known as Grotte de Dorgali; *Strix uralensis* reidentified as *Bubo insularis*

IT 16 Carnello (Sora) (Lazio)

Type: o

Sources: Cassoli 1980; Segre, Bidittu & Cassoli 1984

Date: LP "cold" Mousterian, perhaps early IS 4 ?

Fauna: *Cygnus cygnus*, *Cygnus columbianus*, *Anser fabalis*, *Anas platyrhynchos*, *Anas acuta*, *Anas penelope*, *Mergus albellus*, *Aquila chrysaetos*, *Tetrao tetrix*, *Alectoris graeca*, *Perdix perdix*, *Rallus aquaticus*, *Bubo bubo*, *Strix aluco*

Det.: Cassoli

IT 17 Castel di Guido (Lazio)

Type: o

Source: Longo et al. 1982
Date: MP Acheulean IS 9–10?
Fauna: *Cygnus* cf. *columbianus*

IT 18 Cava C1 di S. Isidoro (Puglia)

Type: c
Sources: Cardini 1961; Cassoli 1980
Layer: C1 m. 5
Date: LP ?
Fauna: *Alectoris graeca*, *Columba livia*
Layer: C1 m. 6
Date: LP ?
Fauna: *Grus grus*, *Corvus corone*
Det.: Cardini; Cassoli

IT 19 Cava E di S. Isidoro (Puglia)

Type: c
Sources: Cardini 1961, Cassoli 1980
Layer: E m. 6
Date: LP?
Fauna: *Circus cyaneus*, *Vanellus* sp., *Columba livia*, *Corvus monedula*
Det.: Cardini, Cassoli

IT 20 Cava Nera Molinario (Lazio)

Type: c
Sources: Cassoli 1978; Follier 1961 (Blanc et al. 1955)
Date: MP “Pre-Riss, Mindel II” IS 15?
Fauna: *Cygnus columbianus*
Det.: Blanc
Notes: also known as Cava Bianca

IT 21 Cava Panzini a Pontecorvo (Lazio)

Type: o
Sources: Bidittu & Segre 1982; Cassoli 1978 (Bidittu & Segre 1976–77)
Date: MP IS 9 ?
Fauna: *Anser erythropus*
Det.: Cassoli
Notes: also known as Vetrine, Pontecorvo

IT 22 Cava Sud à Soave (Verona)

Type: c
Sources: Mourer-Chauviré 1980b
Date: EP Middle/Late Villafranchien (end EP) MNQ 20
Fauna: *Palaeocryptonyx* sp., Alaudidae, *Corvus pliocaenus*

Det.: Mourer-Chauviré

IT 23 Caverna dei Verezzi (Liguria)

Type: c

Sources: Cassoli 1980; Lambrecht 1933; Milne-Edwards 1867–71, 1875a,b; Wolf 1938–41 (Portis 1884, Issel 1892)

Fauna: *Anas penelope*, *Falco tinnunculus*, *Falco naumanni*, *Falco vespertinus*, *Lagopus lagopus*, *Tetrao urogallus*, *Coturnix coturnix*, *Alectoris graeca*, *Rallus aquaticus*, *Crex crex*, *Columba oenas*, *Bubo bubo*, *Athene noctua*, *Glaucidium passerinum*, *Otus scops*, *Apus apus*, *Turdus migratorius*, *Turdus viscivorus*, *Pica pica*, *Pyrhcorax graculus*, *Carduelis cannabina*, *Pyrrhula pyrrhula*, *Loxia curvirostra*, *Coccothraustes coccothraustes*

Det.: Milne-Edwards; Cassoli?; Portis?

IT 24 Caverna del Pastore (Liguria)

Alt.: 350

Type: c

Sources: Lambrecht 1933; Morelli 1890b; Wolf 1938–41 (Mochi 1914)

Date: LP

Fauna: cf. *Pyrhcorax graculus*

Notes: also known as Tana del Pastore, Grotta del Pastore

IT 25 Caverna delle Fate (Liguria)

Alt.: 280

Type: c

Sources: Cassoli 1980; Issel 1889; Musil 1980b; Vaufrey 1928; Wolf 1938–41, (Issel 1892)

Date: LP Mousterian or younger; Mousterian layer dated to 60–83 KA BP (ESR, U/Th)

Fauna: *Tetrao tetrix*

Det.: Issel; Amerano

IT 26 Caverna di Pollera (Liguria)

Type: c

Sources: Cassoli 1980; Lambrecht 1933; Wolf 1938–41

Fauna: *Lagopus mutus*, *Perdix perdix*, *Rallus aquaticus*, *Numenius phaeopus*, *Anas platyrhynchos*, *Melanitta fusca*, *Turdus* sp., *Corvus corax*, *Corvus corone*, *Pica pica*, *Pyrhcorax graculus*

IT 27 Caves on Pianosa (Livorno)

Type: c

Sources: Azzaroli 1978; Stehlin 1928

Date: LP

Fauna: *Aquila* sp.

Det.: Rüttimeyer

Notes: from Late Pleistocene bone breccia

IT 28 Colle Avarone (Lazio)

Type: o

Sources: Bidittu & Segre 1982; Cassoli 1978, 1980

Date: MP IS 9 ?

Fauna: *Anser brachyrhynchus*, *Stercorarius longicaudus*

Det.: Cassoli

Notes: also known as Ceprano a Avarone and Ceprano

IT 29 Colli Berici (Vicenza)

Type: c

Source: Jánossy & Schmidt 1970

Date: LP ?

Fauna: *Bubo bubo*

IT 30 Contrada Ianní di San Calogero (Calabria)

Alt.: 75

Type: o

Source: Bonfiglio et al. 1986

Date: LP Mousterian

Fauna: *Ardea cinerea*, *Aythya ferina*

Det.: Cassoli ?

IT 31 Covolo di Trene (Vicenza)

Alt.: 360

Type: c

Sources: Bon et al. 1991; Cassoli 1980; Cassoli & Tagliacozzi 1994 (Tonon 1977)

Date: LP, later part

Fauna: *Tetrao tetrix*, *Nyctea scandiaca*, *Pyrrhocorax graculus*, *Garrulus glandarius*

Stored: Museo Civico di Vicenza

IT 32 Formazione Stagnale (Lazio)

Type: o

Sources: Cassoli 1978; Lambrecht 1933 (Portis 1900)

Date: LP ?

Fauna: *Cygnus* sp., *Anser* sp., *Anas* sp., *Gyps fulvus*

Det.: Portis ?

Notes: also known as Monte S. Paolo

IT 33 Frascati (Lazio)

Type: o

Sources: Friant 1952; Lambrecht 1933 (Meli 1889, 1892)

Fauna: *Gyps* sp.

IT 34 Grotta Guattari (Lazio)

Alt.: 5

Type: c

Sources: Cassoli 1980; Taschini 1979 (Blanc & Segre 1953)

Layer: 1

Date: LP Early Weichsel, Post-Tyrrhenian, U/Th 51 ± 3 KA IS 4 ?; probably younger than "Tyrrhenian III" = IS 5a ?; date also reported as 55–78 KA BP, ESR=44–62 KA BP

Fauna: *Anas platyrhynchos*, *Perdix perdix*, *Pica pica*, *Pyrhcorax graculus*

Det.: Blanc

IT 35 Grotta Inferno a Scala (Sardegna)

Type: c

Source: Cassoli 1980

Date: LP ?

Fauna: *Aquila chrysaetos*, *Columba livia*, *Pyrhcorax graculus*, *Corvus monedula***IT 36 Grotta Luparello (Palermo)**

Type: c

Sources: Vaufray 1929; Wolf 1938–41

Date: LP Early LP ? "Terre rouge á Elephants"

Fauna: *Phalacrocorax aristotelis*, *Anser* sp., *Anas* sp., *Alectoris graeca*, *Columba livia*, *Columba oenas*, *Columba palumbus*, *Strix* sp., *Garrulus glandarius*, *Pyrhcorax* sp.

IT 37 Grotta Pietro Tampoia (Sardegna)

Type: c

Sources: Alcover et al. 1992; Brodkorb 1963; Lambrecht 1933; Lydekker 1891b; Mayaud & Schaub 1950; Newton 1922a; Wolf 1938–41 (Shufeldt 1896, Regalia 1896)

Fauna: *Puffinus puffinus yelkouan*, *Puffinus griseus* ?, *Calonectris diomedea*, *Hydrobates pelagicus*, *Coturnix coturnix*, *Porzana* cf. *parva*, *Columba* cf. *livia*, cf. *Bubo insularis*, *Coracias garrulus* ?, *Apus apus*, *Apus melba*, *Corvus corone/fragilegus*, *Serinus* cf. *serinus*, *Coccothraustes coccothraustes*, *Fringilla* cf. *coelebs*, *Emberiza hortulana* ?

Det.: Lydekker; Newton; Shufeldt; Mayaud & Schaub

Stored: Musée d'Histoire Naturelle de Bâle and British Museum (Natural History)

Notes: on Tavolara island; also known as Pietro Tamponi; the Roller was originally identified as *Coracias* cf. *abyssinica* by Lydekker (1891) but this is most unlikely; many, perhaps all, fossils from this site are of Holocene age

IT 38 Grotta Polesini (Lazio)

Type: c

Sources: Cassoli 1980; Radmilli 1974

Layer: 1

Date: LP LG Dryas III, layer 8–1 $14C=10,000\pm80$ BP

Fauna: *Anas platyrhynchos*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Coturnix coturnix*, *Vanellus vanellus*, *Coracias garrulus*, *Hirundo rustica*, *Turdus philomelos*, *Sturnus vulgaris*, *Corvus corax*, *Corvus monedula*, *Pica pica*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*

Layer: 2

Date: LP LG Alleröd, layer 8–1 $14C=10,000\pm80$ BP

Fauna: *Lagopus mutus*, *Perdix perdix*, *Coturnix coturnix*, *Vanellus vanellus*, *Calidris alpina*, *Hirundo rustica*, *Sturnus vulgaris*, *Corvus monedula*, *Pyrrhocorax graculus*

Layer: 3 Date: LP LG Alleröd, layer 8–1 $14C=10,000\pm80$ BP

Fauna: *Anser anser*, *Anser erythropus*, *Anas platyrhynchos*, *Lagopus mutus*, *Perdix perdix*, *Coturnix coturnix*, *Vanellus vanellus*, *Calidris alpina*, *Hirundo rustica*, *Sturnus vulgaris*, *Corvus monedula*, *Pyrrhocorax pyrrhocorax*

Layer: 4

Date: LP LG Alleröd, layer 8–1 $14C=10,000\pm80$ BP

Fauna: *Anser anser*, *Anser erythropus*, *Tadorna tadorna*, *Anas platyrhynchos*, *Pluvialis apricaria*, *Lagopus mutus*, *Tetrao urogallus*, *Perdix perdix*, *Coturnix coturnix*, *Pluvialis squatarola*, *Hirundo rustica*, *Turdus pilaris*, *Turdus philomelos*, *Sturnus vulgaris*, *Corvus corax*, *Corvus monedula*, *Pyrrhocorax graculus*

Layer: 5

Date: LP LG Alleröd, layer 8–1 $14C=10,000\pm80$ BP

Fauna: *Anser anser*, *Anser erythropus*, *Vanellus vanellus*, *Tringa glareola*, *Lagopus mutus*, *Perdix perdix*, *Coturnix coturnix*, *Hirundo rustica*, *Cinclus cinclus*, *Zoothera dauma*, *Turdus pilaris*, *Turdus philomelos*, *Sturnus vulgaris*, *Corvus corax*, *Corvus monedula*, *Pica pica*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*

Layer: 6

Date: LP LG Alleröd, layer 8–1 $14C=10,000\pm80$ BP

Fauna: *Lagopus mutus*, *Perdix perdix*, *Coturnix coturnix*, *Calidris ferruginea*, *Tringa glareola*, *Hirundo rustica*, *Riparia riparia*, *Cinclus cinclus*, *Turdus philomelos*, *Turdus torquatus*, *Sturnus vulgaris*, *Corvus corax*, *Corvus monedula*, *Pica pica*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*

Layer: 7

Date: LP LG Alleröd, layer 8–1 $14C=10,000\pm80$ BP

Fauna: *Anser erythropus*, *Tadorna tadorna*, *Lagopus mutus*, *Perdix perdix*, *Coturnix coturnix*, *Pluvialis squatarola*, *Larus melanocephalus*, *Hirundo rustica*, *Sturnus vulgaris*, *Turdus pilaris*, *Turdus philomelos*, *Turdus torquatus*, *Corvus monedula*, *Pica pica*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*

Layer: 8

Date: LP LG Alleröd, layer 8–1 $14C=10,000\pm80$ BP

Fauna: *Lagopus mutus*, *Perdix perdix*, *Coturnix coturnix*, *Riparia riparia*, *Turdus pilaris*, *Sturnus vulgaris*, *Corvus monedula*, *Pica pica*, *Pyrhacorax pyrrhacorax*, *Pyrhacorax graculus*

Layer: 9

Date: LP LG Dryas II

Fauna: *Anser anser*, *Perdix perdix*, *Coturnix coturnix*, *Vanellus vanellus*, *Tringa glareola*, *Riparia riparia*, *Cinclus cinclus*, *Turdus pilaris*, *Corvus corax*, *Corvus monedula*, *Pica pica*, *Pyrhacorax pyrrhacorax*, *Pyrhacorax graculus*

Layer: 10

Date: LP LG Dryas II

Fauna: *Anser anser*, *Tetrao tetrix*, *Perdix perdix*, *Coturnix coturnix*, *Cinclus cinclus*, *Corvus monedula*, *Pica pica*, *Pyrhacorax graculus*

Layer: 11

Date: LP LG Dryas II

Fauna: *Perdix perdix*, *Coturnix coturnix*, *Vanellus vanellus*, *Sturnus vulgaris*, *Corvus corax*, *Corvus monedula*, *Pica pica*, *Pyrhacorax graculus*, *Pyrhacorax pyrrhacorax*

Layer: 12

Date: LP LG End Bölling

Fauna: *Tadorna tadorna*, *Perdix perdix*, *Coturnix coturnix*, *Vanellus vanellus*, *Tringa glareola*, *Hirundo rustica*, *Turdus philomelos*, *Sturnus vulgaris*, *Corvus corax*, *Corvus monedula*, *Pica pica*, *Pyrhacorax graculus*, *Pyrhacorax pyrrhacorax*

Layer: unstratified

Date: LP LG End Bölling-Dryas III

Fauna: *Chlidonias niger*

IT 39 Grotta Rapaci (Sardegna)

Type: c

Source: Mourer-Chauviré & Weesie 1986

Fauna: *Bubo insularis*

Det.: Mourer-Chauviré, Weesie

IT 40 Grotta Romanelli (Puglia)

Alt.: 18

Type: c

Sources: Bartolomei et al. 1979; Blanc 1928; Cassoli 1972; Cassoli, Segre & Segre 1979; Cassoli & Tagliacozzi 1994; Del Campana 1928; Stehlin & Graziosi 1935; Vaufrey 1928; Wolf 1938–41 (Blanc 1920; Rovereto 1919; Stasi & Regalia 1904)

Date: LP

Fauna: *Gavia stellata*, *Phalacrocorax carbo*, *Phalacrocorax aristotelis*, *Ardea purpurea*, *Podiceps auritus*, *Podiceps cristatus*, *Cygnus cygnus*, *Anser albifrons*, *Anser brachyrhynchus*, *Anser erythropus*, *Anser fabalis*, *Branta bernicla*, *Branta leucopsis*, *Anas crecca*, *Anas penelope*, *Aythya ferina*, *Aythya fuligula*, *Aythya marila*, *Clangula hyemalis*, *Melanitta fusca*, *Mergus serrator*, *Milvus migrans*, *Buteo lagopus*, *Aquila sp.*, *Aquila chrysaetos*, *Hieraetus fasciatus*, *Gyps fulvus*, *Haliaeetus albicilla*, *Falco*

Layer: A-E (Terra Bruna)

Date: LP LG

Fauna: *Gavia arctica*, *Phalacrocorax carbo*, *Anser anser* ?, *Anser albifrons*, *Anser fabalis*, *Anser erythropus*, *Branta leucopsis*, *Branta bernicla* ?, *Anas crecca*?, *Anas penelope*, *Cygnus cygnus*?, *Gyps fulvus*, *Buteo lagopus*, *Aquila* sp., *Falco* sp., *Otis tarda*, *Tetrax tetrax*, *Fulica atra*, *Larus ridibundus* ?, *Pinguinus impennis*, *Columba oenas*, *Turdus philomelos* ?, *Corvus* sp., *Corvus corax* ?, *Corvus monedula*

Det: unknown

Layer: A

Date: LP LG Romanellian

Fauna: *Branta bernicla*, *Corvus corax*, *Pyrhcorax graculus*

Layer: A-B

Date: LP LG "Terra Bruna" Romanellian, later part of Dryas 3

Fauna: *Pterocles alchata*

Layer: B

Date: LP LG "Terra Bruna" Late-Middle Dryas 3

Fauna: *Buteo lagopus*, *Pterocles orientalis*, *Pinguinus impennis*, *Nyctea scandiaca*, *Strix uralensis*, *Corvus corax*, *Pyrhcorax graculus*

Layer: c

Date: LP LG Romanellian Middle Dryas 3

Fauna: *Gavia arctica*, *Gavia stellata*, *Podiceps* spp., *Puffinus* spp., *Pelecanus crispus*, *Phalacrocorax carbo*, *Phalacrocorax aristotelis*, *Anser erythropus*, *Anser brachyrhynchus*, *Anser caeruleus*, *Rissa tridactyla*, *Larus marinus*, *Pinguinus impennis*, *Corvus corax*, *Pyrhcorax graculus*

Layer: c1

Date: LP LG "Terra Bruna" Middle Dryas 3

Fauna: *Pterocles alchata*, *Corvus corax*, *Pyrhcorax graculus*

Layer: c2

Date: LP LG "Terra Bruna" Middle Dryas 3

Fauna: *Pterocles alchata*, *Corvus corax*, *Pyrhcorax graculus*

Layer: D

Date: LP LG "Terra Bruna" Early Dryas 3

Fauna: *Pterocles alchata*, *Buteo lagopus*, *Pinguinus impennis*, *Nyctea scandiaca*, *Strix uralensis*, *Corvus corax*, *Pyrhcorax graculus*

Layer: E

Date: LP LG Romanellian, End of Alleröd

Fauna: *Branta bernicla*, *Pinguinus impennis*, *Corvus corax*, *Pyrhcorax graculus*

Layer: A-E

Date: LP LG Romanellian

Fauna: *Branta ruficollis*, *Anas* sp., *Melanitta fusca*, *Mergus* sp., *Aquila clanga*, *Aquila heliaca*, *Perdix perdix*, *Coturnix coturnix*, *Otis tarda*, *Tetrax tetrax*, *Charadrius morinellus*, *Numenius phaeopus*, *Pluvialis squatarola*, *Corvus corax*, *Pyrhcorax graculus*, *Nucifraga caryocatactes*, *Loxia curvirostra*

Det.: Cassoli

Layer: c-D

Date: LP LG

Fauna: *Gavia* cf. *arctica*, *Cygnus* cf. *cygnus*, *Phalacrocorax carbo*, *Anser albifrons*, *Anser erythropus*, *Branta leucopsis*, *Branta bernicla*, *Anas crecca*, *Buteo lagopus*, *Falco* sp., *Pinguinus impennis*

Det: unknown

Layer: A-E

Date: LP LG final Epigravettian 14C=9,880–11,960 BP

Fauna: *Otis tarda*, *Tetrax tetrax*, *Philomachus pugnax*, *Pinguinus impennis*

Notes: *Pinguinus impennis* in layer C-D

Det: unknown

Date: LP Mousterian, "Terra Rossa"

Fauna: *Scolopax rusticola*, *Nyctea scandiaca*, *Strix uralensis*

Det.: Cassoli

Layer: G-I

Date: LP Early Würm

Fauna: *Anser albifrons*

Notes: "Terra Rossa"

Det: unknown

IT 41 Grotta S. Agostino (Lazio)

Alt.: 50

Type: c

Source: Cassoli 1980

Date: LP Mousterian 43–55 KA BP "Würm II" = IS4?

Fauna: *Pyrhocorax pyrrhocorax*, *Pyrhocorax graculus*

IT 42 Grotta Titti (Puglia)

Type: c

Source: Cardini 1961

Layer: B-E

Date: LP Mousterian

Fauna: *Turdus* sp., *Sturnus* sp.

Layer: F

Date: LP Mousterian

Fauna: *Alectoris* sp., *Turdus* sp., *Sturnus* sp., *Corvus corax*, *Corvus monedula*

Det.: Cardini; Cassoli

IT 43 Grotta Valdemino (Liguria)

Type: c

Sources: Musil 1980b; Tozzi 1969

Date: LP

Fauna: *Columba livia*, *Strix aluco*, *Garrulus glandarius*, *Turdus merula*, *Erithacus rubecula*, *Prunella collaris*

IT 44 Grotta Zinzulusa (Puglia)

Type: c

Source: Cardini 1961

Layer: Middle

Date: LP LG Epipaleolithic

Fauna: *Columba livia*, *Aegypius monachus*

Layer: Lower

Date: LP Mousterian

Fauna: *Columba* sp.

Det.: Cardini, Cassoli

IT 45 Grotta all'Onda (Toscana)

Alt.: 710

Type: c

Sources: Del Campana 1928; Lambrecht 1933; Musil 1980b; Vaufrey 1928 Wolf 1938–41 (Del Campana 1916)

Layer: A

Date: LP ? "Alluvium" Neolithic ?

Fauna: *Columba palumbus*, *Buteo buteo*

Layer: Upper

Date: LP UP

Fauna: *Lagopus mutus*, *Tetrao tetrix*, *Columba oenas*, *Columba palumbus*, *Corvus* sp., *Corvus corone*

Layer: Lower

Date: LP Mousterian

Fauna: *Lagopus mutus*, *Tetrao tetrix*, *Columba oenas*, *Columba palumbus*, *Corvus* sp., *Corvus corone*

Det.: Del Campana

IT 46 Grotta dei Colombi (Liguria)

Type: c

Sources: Cassoli 1980; Del Campana 1928; Lambrecht 1933; Vaufrey 1928; Wolf 1938–41 (Regalia 1893, 1900)

Date: LP LG "Bühlstadium, Magdalenian"

Fauna: *Gavia arctica* ?, *Gavia stellata* ?, *Podiceps auritus*, *Podiceps cristatus*, *Podiceps aff. griseogena*, *Phalacrocorax aristotelis*, *Cygnus* sp., *Anser anser*, *Anser fabalis*, *Anas crecca*, *Anas clypeata*, *Anas penelope*, *Anas platyrhynchos*, *Anas querquedula*, *Anas strepera*, *Aythya ferina*?, *Aythya fuligula*, *Mergus aff. albellus*, *Accipiter gentilis*, *Aquila chrysaetos*, *Gyps fulvus*, *Pandion haliaetus*, *Buteo lagopus*, *Falco peregrinus*, *Falco eleonorae*, *Falco subbuteo*, *Falco tinnunculus*, *Falco vespertinus*, *Tetrao tetrix*, *Tetrao urogallus*, *Alectoris graeca*, *Alectoris rufa*, *Perdix perdix*, *Coturnix coturnix*, *Porzana porzana*, *Crex crex*, *Fulica atra*, *Gallinula chloropus*, *Otis tarda*, *Tetrax tetrax*, *Vanellus vanellus*, *Tringa nebularia*, *Tringa ochropus*, *Scolopax rusticola*, *Gallinago gallinago*, *Gallinago media*, *Himantopus himantopus*, *Larus argentatus*, *Larus melanocephalus*, *Chlidonias aff. leucoptera*, *Chlidonias aff. nigra*, *Columba livia*, *Columba oenas*, *Columba palumbus*, *Bubo bubo*, *Nyctea scandiaca*, *Strix aluco*, *Athene noctua*, *Asio flammeus*, *Asio otus*, *Apus apus*, *Apus melba*, *Hirundo daurica*, *Hirundo rustica*, *Delichon urbica*, *Hirundo rupestris*, *Turdus merula*, *Turdus viscivorus*, *Sturnus vulgaris*, *Sturnus roseus*, *Oriolus oriolus*, *Corvus* sp., *Corvus corax*,

Corvus corone, *Corvus frugilegus*, *Pica pica*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Corvus monedula*

Det.: Regalia

IT 47 Grotta dei Fanciulli (Liguria)

Type: c

Source: Del Campana 1946

Layer: A1 Date: LP

Fauna: *Turdus viscivorus*

Layer: A2

Date: LP

Fauna: *Columba livia*, *Turdus viscivorus*

Layer: A4

Date: LP

Fauna: *Anas penelope*, *Alectoris graeca*, *Columba palumbus*, *Pyrrhonorax graculus*, *Pyrrhonorax pyrrhonorax*

Layer: A5

Date: LP

Fauna: *Phalacrocorax aristotelis*, *Anas crecca*, *Anas querquedula*, *Aythya ferina*, *Alectoris graeca*, *Columba palumbus*, *Pyrrhonorax pyrrhonorax*

Layer: A6

Date: LP

Fauna: *Phalacrocorax aristotelis*, *Anas platyrhynchos*, *Accipiter nisus*, *Perdix perdix*, *Scolopax rusticola*, *Rissa tridactyla*, *Columba palumbus*, *Columba livia*, *Asio flammeus*, *Turdus philomelos*, *Pyrrhonorax pyrrhonorax*

Layer: A7

Date: LP

Fauna: *Phalacrocorax carbo*

Layer: B1

Date: LP

Fauna: *Anas platyrhynchos*, *Anas querquedula*, *Anas penelope*, *Anas acuta*, *Aythya ferina*, *Aythya nyroca*, *Aquila chrysaetos*, *Tetrao tetrix*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Porzana porzana*, *Crex crex*, *Columba palumbus*, *Columba livia*, *Apus apus*, *Strix aluco*, *Melanocorypha calandra*, *Prunella collaris*, *Turdus viscivorus*, *Turdus iliacus*?, *Turdus philomelos*, *Turdus merula*, *Corvus corone*, *Corvus frugilegus*, *Garrulus glandarius*, *Pyrrhonorax graculus*, *Coccothraustes coccothraustes*, *Loxia curvirostra*, *Fringilla coelebs*

Layer: B2

Date: LP

Fauna: *Anas querquedula*, *Anas penelope*, *Buteo buteo*, *Alectoris graeca*, *Coturnix coturnix*, *Porzana porzana*, *Fulica atra*, *Numenius tenuirostris*, *Columba livia*, *Apus apus*, *Asio flammeus*, *Turdus viscivorus*, *Turdus iliacus*?, *Turdus philomelos*, *Turdus merula*, *Corvus corax*, *Garrulus glandarius*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*

Layer: B3

Date: LP

Fauna: *Anas querquedula*, *Alectoris graeca*, *Perdix perdix*, *Columba livia*, *Turdus viscivorus*, *Turdus philomelos*, *Garrulus glandarius*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*

Layer: B4

Date: LP

Fauna: *Alectoris graeca*, *Perdix perdix*, *Columba livia*, *Turdus merula*, *Corvus frugilegus*, *Garrulus glandarius*, *Pyrrhonorax graculus*

Layer: B5

Date: LP

Fauna: *Anas platyrhynchos*, *Alectoris graeca*, *Columba oenas*, *Columba livia*, *Turdus iliacus*?, *Pyrrhonorax graculus*

Layer: B6

Date: LP

Fauna: *Aquila chrysaetos*, *Buteo buteo*, *Alectoris graeca*, *Perdix perdix*, *Columba livia*, *Pyrrhonorax graculus*

Layer: B7

Date: LP

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Anas querquedula*, *Aquila chrysaetos*, *Falco tinnunculus*, *Alectoris graeca*, *Columba livia*, *Corvus frugilegus*, *Pyrrhonorax graculus*, *Pyrrhonorax pyrrhonorax*

Det.: Del Campana

Stored: Musée d'Anthropologie Préhistorique de Monaco

Notes: also known as Grotte des Infants; basal layers, Formazioni A & B ("Terra rosa e focolari" and "Terra rossa" respectively)

IT 48 Grotta dei Gerbai (Liguria)

Type: c

Sources: Wolf 1938–41; Mourer-Chauviré 1975a (Rivière 1887a,b)

Fauna: *Lagopus lagopus*, *Alectoris graeca*, *Columba palumbus*, *Sturnus vulgaris*, *Pica pica*, *Pyrrhonorax pyrrhonorax primigenius*

Notes: Grottes de Mentone/Grimaldi

IT 49 Grotta dei Giganti (Puglia)

Type: c

Source: Cassoli 1980

Date: LP Mousterian

Fauna: *Anser albifrons*, *Branta bernicla*, *Anas crecca*, *Anas penelope*, *Aythya ferina*, *Buteo buteo*, *Aquila chrysaetos*, *Falco tinnunculus*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Recurvirostra avosetta*, *Asio flammeus*, *Apus apus*, *Melanocorypha calandra*, *Turdus pilaris*, *Sturnus vulgaris*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Corvus monedula*, *Corvus corone*

Notes: at Capo di Leuca

IT 50 Grotta del Broion (Venetia)

Alt.: 150

Type: c

Sources: Bon et al. 1991; Cassoli & Tagliacozzi 1994

Date: MP/LP Latest MP-Late Glacial

Fauna: *Podiceps cristatus*, *Anas acuta*, *Anas platyrhynchos*, *Anas querquedula*, *Aythya ferina*, *Accipiter nisus*, *Falco tinnunculus*, *Falco columbarius*, *Tetrao tetrix*, *Perdix perdix*, *Crex crex*, *Columba livia*, *Asio otus*, *Athene noctua*, *Apus apus*, *Dendrocopos major*, *Hirundo rustica*, *Turdus merula*, *Turdus viscivorus*, *Corvus* sp., *Pyrhcorax graculus*, *Garrulus glandarius*, *Passer italiae*

Notes: in Colli Berici; Cassoli & Tagliacozzi also report *Alectoris graeca*. Mousterian at this site 14C dated to 40,600–46,000 BP

IT 51 Grotta del Castello (Sicilia)

Alt.: 35

Type: c

Sources: Del Campana 1928; Vaufrey 1928, 1929; Wolf 1938–41 (Regalia 1907, Schweinfurth 1907)

Layer: D I

Date: LP

Fauna: *Anser erythropus* ?, *Anser fabalis* ?, *Branta leucopsis* ?, *Columba palumbus*, *Sturnus roseus*

Det.: Regalia

Notes: also known as Riparo del Castello

IT 52 Grotta del Caviglione (Liguria)

Type: c

Sources: Mourer-Chauviré 1975a; Wolf 1938–41 (Boule 1910; Rivière 1887a)

Layer: D I

Date: LP Würm II Mousterian ?

Fauna: *Pica pica*

Layer: ?

Date: LP "Würm II" Mousterian

Fauna: *Gyps fulvus*, *Aquila chrysaetos*, *Alectoris graeca*, *Alectoris barbara*, *Garrulus glandarius*, *Pica pica*, *Pyrhcorax pyrrhcorax primigenius*, *Corvus frugilegus*

Det.: Boule

Stored: Musée d'Anthropologie Préhistorique de Monaco

Notes: also known as Grotte de Cavillon, Grottes de Mentone/Grimaldi

IT 53 Grotta del Fossellone (Lazio)

Type: c

Source: Cassoli 1980

Date: LP Mousterian/Aurignacian

Fauna: *Botaurus stellaris*, *Anser albifrons*, *Branta bernicla*, *Falco vespertinus*, *Alectoris graeca*, *Perdix perdix*, *Columba oenas*, *Bubo bubo*, *Turdus viscivorus*, *Turdus pilaris*, *Pyrhcorax pyrrhcorax*, *Corvus monedula*

IT 54 Grotta del Orso di Gabrovizza (Trento)

Alt.: 224

Type: c

Sources: Bon et al. 1991; Lambrecht 1933; Marchesetti 1890 Wolf 1938–41 (Battaglia 1920)

Date: LP/Hol

Fauna: *Falco* sp., *Gallus* sp., *Tyto alba*

Stored: Museo Civico di Storia Naturale di Trieste (part)

Notes: also known as Pytina Jama, Caverna di Gabrovizza; "*Strix flammea*" in this case is probably *Tyto alba***IT 55 Grotta del Principe (Liguria)**

Alt.: 8

Type: c

Sources: Del Campana 1928; Mourer-Chauviré 1975a; Wolf 1938–41 (Boule 1910)

Layer: ?

Date: ?

Fauna: *Anas platyrhynchos*, *Anas querquedula*, *Bucephala clangula*, *Aythya fuligula*, *Anas clypeata*, *Aquila chrysaetos*, *Aegypius monachus*, *Gyps fulvus*, *Haliaeetus albicilla*, *Circus macrourus*, *Milvus milvus*, *Accipiter gentilis*, *Falco vespertinus*, *Tetrao tetrix*, *Alectoris barbara*, *Alectoris graeca*, *Alectoris rufa*, *Perdix perdix*, *Columba livia*, *Columba oenas*, *Vanellus vanellus*, *Gallinago media*, *Strix aluco*, *Bubo bubo*, *Asio flammeus*, *Dendrocopos major*, *Bombycilla garrulus*, *Prunella collaris*, *Zoothera dauma*, *Aegithalos caudatus*, *Corvus corax*, *Nucifraga caryocatactes*, *Pica pica*, *Pyrrhocorax graculus*, *Pyrrhocorax pyrrhocorax*, *Fringilla coelebs*, *Carduelis flammea*, *Coccothraustes coccothraustes*, *Montifringilla nivalis*

Det: unknown

Layer: unstratified

Date: LP

Fauna: *Asio otus*, *Otus scops*, *Alauda arvensis*?, *Zoothera dauma*?

Layer: A

Date: LP "Würm II" Typical Mousterian

Fauna: *Anas platyrhynchos*, *Aythya fuligula*, *Aquila chrysaetos*, *Perdix perdix*, *Coccothraustes coccothraustes*

Layer: B

Date: LP "Würm II" Typical Mousterian

Fauna: *Anas querquedula*, *Anas clypeata*, *Gyps fulvus*, *Gyps melitensis*, *Aegypius monachus*, *Aquila chrysaetos*, *Accipiter gentilis*, *Milvus milvus*, *Haliaeetus albicilla*, *Circus macrourus*, *Falco tinnunculus*, *Lagopus mutus*, *Tetrao tetrix*, *Alectoris graeca*, *Alectoris barbara*, *Perdix perdix*, *Vanellus vanellus*, *Gallinago media*, *Scolopax rusticicola*, *Columba livia*, *Columba oenas*, *Tyto alba*, *Bubo bubo*, *Strix aluco*, *Dendrocopos major*, *Pica pica*, *Pyrrhocorax pyrrhocorax primigenius*, *Pyrrhocorax graculus*, *Corvus corax*

Layer: "Couche a rongeurs"

Date: LP "Würm I/II"

Fauna: *Coturnix coturnix*, *Bubo bubo*, *Apus apus*, *Bombycilla garrulus*, *Fringilla coelebs*,
Carduelis flammea, *Coccothraustes coccothraustes*

Layer: F. vert

Date: LP "Würm I/II"

Fauna: *Aquila chrysaetos*

Layer: C

Date: LP "Würm I" Typical Mousterian

Fauna: *Anas platyrhynchos*, *Bucephala clangula*, *Aquila chrysaetos*, *Circus macrourus*,
Falco vespertinus?, *Falco tinnunculus*, *Alectoris graeca*, *Alectoris barbara*, *Perdix*
perdix, *Coturnix coturnix*, *Porzana porzana*, *Crex crex*, *Gallinula chloropus*, *Tringa*
cf. *nebularia*, *Columba livia*, *Columba palumbus*, *Asio flammeus*, *Strix aluco*, *Apus*
apus, *Hirundo daurica*, *Prunella collaris*, *Aegithalos caudatus*?, *Fringilla coelebs*,
Carduelis chloris, *Garrulus glandarius*, *Nucifraga caryocatactes*, *Pyrhocorax pyrrho-*
corax primigenius, *Pyrhocorax graculus*, *Corvus corone*, *Corvus corax*

Layer: D

Date: LP "Würm I" Typical Mousterian

Fauna: *Alectoris graeca*, *Alectoris barbara*, *Coturnix coturnix*, *Columba livia*, *Columba*
palumbus, *Hirundo rustica*, *Turdus merula*, *Turdus iliacus*, *Garrulus glandarius*

Layer: Br 1

Date: MP "Riss"

Fauna: *Alectoris barbara*

Det.: Boule

Stored: Musée d'Anthropologie Préhistorique de Monaco

Notes: Grottes de Mentone/Grimaldi, also known as Grotte du Prince

IT 56 Grotta del Uzzo (Sicilia)

Type: c

Source: Cassoli & Tagliacozzi 1994

Date: LP ?

Fauna: *Pyrhocorax graculus*

IT 57 Grotta del Zachito (Sicilia)

Type: c

Sources: Cassoli 1980; Lambrecht 1933; Wolf 1938–41

Fauna: *Buteo* sp., *Buteo buteo*, *Falco peregrinus*, *Falco subbuteo*, *Columba livia*, *Columba*
palumbus, *Strix aluco*

Det.: Regalia

IT 58 Grotta della Cava di Sezze Romano (Lazio)

Type: c

Sources: Cassoli 1980; Segre Naldini 1984

Date: LP Mousterian "ana-Würm" perhaps Late IS 5a/early IS 4

Fauna: *Cygnus cygnus*, *Anas penelope*, *Columba livia*, *Apus melba*

Notes: also known as Sezze Romano

IT 59 Grotta della Madonna (Calabria)

Type: c

Sources: Cassoli 1972; Cassoli 1980; Cassoli & Tagliacozzi 1994

Layer: L

Date: LP LG Upper Paleolithic 14C=8,735±80–12,100±150 BP

Fauna: *Pterocles orientalis*, *Scolopax rusticola*

Layer: ?

Date: LP?

Fauna: *Calonectris diomedea*, *Botaurus stellaris*, *Cygnus cygnus*, *Anser albifrons*, *Anas platyrhynchos*, *Anas penelope*, *Netta rufina*, *Aythya ferina*, *Bucephala clangula*, *Mergus merganser*, *Mergus serrator*, *Accipiter gentilis*, *Buteo buteo*, *Aquila chrysaetos*, *Circus cyaneus*, *Circus macrourus*, *Circus aeruginosus*, *Falco subbuteo*, *Falco tinnunculus*, *Tetrao tetrix*, *Lagopus mutus*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Rallus aquaticus*, *Crex crex*, *Fulica atra*, *Otis tarda*, *Columba livia*, *Columba palumbus*, *Streptopelia turtur*, *Cuculus canorus*, *Otus scops*, *Bubo bubo*, *Athene noctua*, *Strix aluco*, *Asio flammeus*, *Apus apus*, *Coracias garrulus*, *Melanocorypha calandra*, *Hirundo rupestris*, *Turdus viscivorus*, *Turdus pilaris*, *Fringilla coelebs*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Corvus monedula*, *Corvus corone*, *Corvus corax*, *Garrulus glandarius*

Det.: Cassoli

Notes: also known as Praia a Mare

IT 60 Grotta della Volpe (Verona)

Alt.: 200

Type: c

Source: Bon et al. 1991

Date: LP

Fauna: *Prunella cf. collaris*, *Turdus sp.*, *Fringilla coelebs*, *Passer italiae*

Stored: Museo Civico di Storia Naturale di Verona

IT 61 Grotta dell'Addaura (Sicilia)

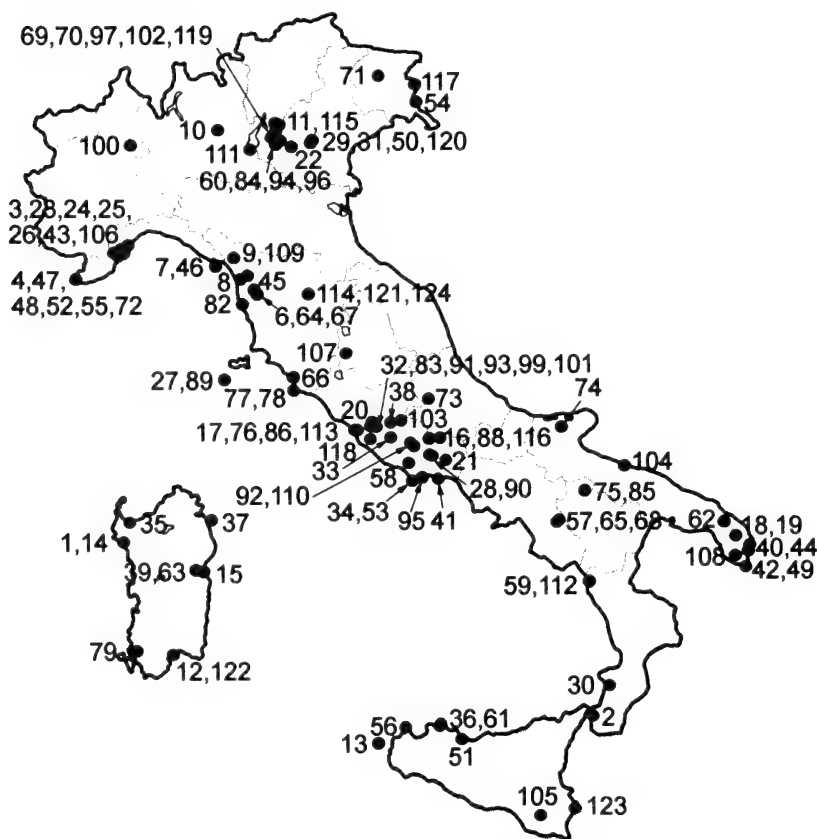
Type: c

Source: Cassoli 1980

Date: LP ?

Fauna: *Cygnus cygnus*, *Anser albifrons*, *Anas platyrhynchos*, *Aquila chrysaetos*, *Falco tinnunculus*, *Alectoris graeca*, *Columba livia*, *Columba palumbus*, *Columba oenas*, *Otus scops*, *Bubo bubo*, *Asio otus*, *Apus apus*, *Turdus viscivorus*, *Turdus pilaris*, *Sturnus vulgaris*, *Pica pica*, *Garrulus glandarius*, *Pyrrhonorax pyrrhonorax*, *Corvus monedula*, *Corvus corone*

Det.: Cassoli ?



Not exactly localized sites: 80, 87, 98

ITALY (IT)

IT 62 Grotta di Cardamone (Puglia)

Type: c

Sources: Cardini 1961; Cassoli 1980; Lambrecht 1933; Vaufray 1927, 1928; Wolf 1938–41 (Botti 1891)

Date: LP ?

Fauna: *Anser albifrons*, *Branta bernicla*, *Anas platyrhynchos*, *Anas crecca*, *Mergus merganser*, *Buteo buteo*, *Buteo lagopus*, *Aquila chrysaetos*, *Circus cyaneus*, *Circus macrourus*, *Circus aeruginosus*, *Falco rusticolus*, *Falco subbuteo*, *Falco tinnunculus*, *Otis tarda*, *Calidris canutus*, *Charadrius morinellus*, *Nyctea scandiaca*, *Asio otus*, *Pyrhocorax pyrrhocorax*, *Corvus corone*

Date: LP ?

Fauna: *Grus grus*, *Otis tarda*, *Columba oenas*, *Strix* sp., *Corvus corax*

Det.: Blanc ?; Botti
Stored: Istituto Tecnico di Lecce

IT 63 Grotta di Corbeddu (Sardegna)

Type: c
Source: Mourer-Chauviré & Weesie 1986
Date: LP
Fauna: *Bubo insularis*
Det.: Mourer-Chauviré; Weesie

IT 64 Grotta di Cucigliana (Toscana)

Alt.: 60
Type: c
Sources: Cassoli 1980; Del Campana 1928; Lambrecht 1933; Vaufrey 1928; Wolf 1938–41 (Del Campana 1914)
Layer: D II
Fauna: *Tetrao urogallus*
Layer: ?
Fauna: *Perdix perdix*, *Gallinago media*, *Anas platyrhynchos*, *Turdus philomelos*, *Corvus corone*, *Fringilla coelebs*
Det.: Del Campana

IT 65 Grotta di Frola (Sicilia)

Type: c
Sources: Cassoli 1980; Lambrecht 1933; Wolf 1938–41
Fauna: *Gallus* sp.?, *Columba* sp., *Turdus* sp., Sylviidae, *Coccothraustes coccothraustes*, *Fringilla* sp.
Det.: Regalia

IT 66 Grotta di Golino a Talamone (Toscana)

Alt.: 35
Type: c
Sources: Cassoli 1980; Del Campana 1928; Wolf 1938–41 (Del Campana 1921b)
Date: LP UP
Fauna: *Anas penelope*, *Anas platyrhynchos*, *Anas querquedula*, *Falco vespertinus*, *Perdix perdix*, *Gallus gallus*, *Turdus merula*, *Turdus philomelos*, *Turdus viscivorus*, *Pica pica*, *Pyrrhocorax graculus*
Det.: Del Campana

IT 67 Grotta di Parignana (Toscana)

Type: c
Sources: Cassoli 1980; Del Campana 1925, 1928; Lambrecht 1933; Wolf 1938–41
Date: LP

Fauna: *Anas platyrhynchos*, *Buteo buteo*, *Aquila chrysaetos*, *Circaetus gallicus*, *Circus aeruginosus*, *Circus macrourus*, *Bubo bubo*, *Corvus monedula*, *Pyrhcorax pyrrhcorax*

Det.: Del Campana

IT 68 Grotta di Pertosa (Sicilia)

Type: c

Sources: Lambrecht 1933; Wolf 1938–41

Fauna: *Buteo buteo*

Det.: Regalia

IT 69 Grotta di Veja A (Verona)

Alt.: 602

Type: c

Sources: Bon et al. 1991; Cassoli & Tagliacozzi 1994

Date: LP Mousterian, "Early Pleniglacial" and Late LG

Fauna: *Tetrao tetrix*, *Perdix* cf. *perdix*, *Crex crex*, *Columba* cf. *oenas*, *Asio otus*, *Hirundo rustica*, *Turdus* sp., *Pyrhcorax graculus*, *Passer italiae*

Stored: Museo Civico di Storia Naturale di Verona

Notes: also known as Ponte di Veia

IT 70 Grotta di Veja E (Verona)

Alt.: 602

Type: c

Source: Bon et al. 1991

Date: LP LG (latest LG)

Fauna: *Tetrao tetrix*, *Crex crex*, *Columba livia*, *Hirundo rustica*

Stored: Museo Civico di Storia Naturale di Verona

Notes: also known as Ponte di Veia

IT 71 Grotta Verdi di Pradis (Pordenone)

Alt.: 350

Type: c

Sources: Bon et al. 1991; Cassoli & Tagliacozzi 1994 (Tonon 1983)

Date: LP Mousterian + Epigravettian (LG)

Fauna: *Tetrao tetrix*, *Crex crex*, *Porzana porzana*, *Rallus aquaticus*, *Asio otus*, *Jynx torquilla*, *Lullula arborea*, *Hirundo* cf. *rustica*, *Riparia* cf. *riparia*, *Cinclus cinclus*, *Turdus pilaris*, *Pyrhula pyrrhula*, *Pyrhcorax graculus*, *Emberiza citrinella*

Det.: Tonon ?

Stored: Dipartimento di Scienze Geologiche e Paleontologiche dell'Università di Ferrara

Notes: also known as Grotta di Pradis

IT 72 Grottes de Grimaldi (Liguria)

Type: c

Sources: Lydekker 1891a; Mourer-Chauviré 1975a (Rivière 1887a)

Date: LP

Fauna: *Cygnus cygnus*, *Anas platyrhynchos*, *Anas acuta*, *Anas clypeata*, *Aythya fuligula*, *Aegypius monachus*, *Gypaetus barbatus*, *Aquila* sp., *Accipiter nisus*, *Milvus milvus*, *Haliaeetus albicilla*, *Circus cyaneus*, *Circus gallicus*, *Falco naumanni*, *Falco tinnunculus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Alectoris graeca*, *Alectoris rufa*, *Coturnix coturnix*, *Rallus aquaticus*, *Porzana porzana*, *Crex crex*, *Fulica atra*, *Scolopax rusticola*, *Columba livia*, *Columba palumbus*, *Streptopelia turtur*?, *Asio flammeus*, *Athene noctua*, *Strix aluco*, *Tyto alba*, *Hirundo rupestris*, *Turdus migratorius*, *Coccothraustes coccothraustes*, *Garrulus glandarius*, *Pica pica*, *Pyrrhonorax pyrrhonorax primigenius*, *Pyrrhonorax graculus*, *Corvus frugilegus*, *Corvus corax*

Det.: Rivière

Notes: also known as Grottes de Mentone; finds not localized to specific caves; *Streptopelia turtur* is probably *Columba livia/palumbus*

IT 73 Grottoni (Abruzzo)

Alt.: 670

Type: c

Source: Giustizia 1979

Date: LP Mousterian "Würm I kataglacial"

Fauna: *Tachybaptus ruficollis*, *Cygnus cygnus*, *Anas penelope*, *Anas querquedula*, *Aythya ferina*, *Aythya fuligula*, *Aquila chrysaetos*, *Falco vespertinus*, *Falco tinnunculus*, *Alectoris graeca*, *Perdix perdix*, *Philomachus pugnax*, *Columba oenas*, *Athene noctua*, *Asio otus*, *Turdus viscivorus*, *Pica pica*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Corvus corone*

Det.: Cassoli

Notes: also known as I Grottoni

IT 74 Ingarana (Foggia)

Alt.: 260

Type: c

Source: Barbato et al. 1992

Date: LP

Fauna: *Aquila chrysaetos*, *Falco peregrinus*, *Falco tinnunculus*, *Alectoris graeca*, *Perdix perdix*, *Columba oenas*, *Nyctea scandiaca*, *Pyrrhonorax graculus*

Det.: Cassoli

IT 75 Loreto a Venosa (Basilicata)

Type: o

Sources: Cassoli 1978, 1980

Date: MP Acheulean, ca. 200–750 KA BP

Fauna: *Botaurus stellaris*, *Cygnus cygnus*, *Anser anser*, *Branta leucopsis*, *Branta bernicla*, *Branta ruficollis*, *Mergus serrator*, *Coturnix coturnix*, *Fulica atra*, *Otis tarda*, cf. *Surnia ulula*

Det.: Cassoli

Notes: layer 2–4: 198–215 KA BP, layer 8–9: 293–311 KA BP, layer 37: Brunhes/Matuyama border (ca. 730 KA BP)

IT 76 Malagrotta (Lazio)

Type: o

Sources: Cassoli 1980; Cassoli et al. 1982

Date: MP Clactonian ca. 250–300 KA BP IS 9–10?

Fauna: *Anser brachyrhynchus*, *Branta bernicla*, *Anas acuta*, *Anas penelope*, *Anas platyrhynchos*, *Anas querquedula*, *Perdix perdix*, *Rallus aquaticus*, *Calidris temminckii*

Det.: Cassoli

IT 78 Monte Argentario (Toscana)

Type: c

Sources: Cassoli 1980; Caterini 1921; Portis 1887

Date: EP

Fauna: *Alectoris graeca martelensis*, *Alectoris graeca mediterranea*, *Columba livia*

Det: Cassoli

Date: EP ?

Fauna: *Columba oenas*, *Turdus iliacus*

Det.: Del Campana

Notes: also known as Miniera della Polveriera

IT 79 Monte San Giovanni (Sardegna)

Type: c

Sources: Cassoli 1980; Lambrecht 1933; Lydekker 1891b; Newton 1922a

Fauna: *Puffinus* cf. *griseus*, *Milvus* cf. *milvus*, *Aquila* sp., *Aegyptius* cf. *monachus*, *Bubo insularis*?, *Lullula arborea*?, *Hirundo rustica*, *Turdus philomelos*, *Pyrrhula pyrrhula*

Det.: Lydekker

Stored: British Museum (Natural History) or Musée d'Histoire Naturelle De Bâle?

IT 80 Monte Santa cave (Sardegna)

Type: c

Sources: Lambrecht 1933; Newton 1922a

Fauna: *Alectoris rufa*, *Scolopax rusticola*

Det.: Newton

Stored: British Museum (Natural History) or Musée d'Histoire Naturelle de Bâle?

IT 82 Monte Tignoso (Livorno)

Type: c

Sources: Del Campana 1909; Lambrecht 1933

Date: MP/LP

Fauna: *Aquila* sp.

Det.: Del Campana

IT 83 Monte delle Gioie (Lazio)

Type: o

Sources: Cassoli 1978, 1980; Taschini 1967

Date: MP (Protopontinian, "Riss II = Nomentana II") IS 8/9 ?

Fauna: *Phalacrocorax carbo*, *Ciconia ciconia*, *Cygnus olor*, *Cygnus columbianus*, *Anser albifrons*, *Branta leucopsis*, *Anas* sp., *Aythya ferina*

Det.: Blanc; Cardini

IT 84 Montorio (Verona)

Type: c

Sources: Bon et al. 1991; Cassoli & Tagliacozzi 1994

Date: LP ?

Fauna: *Lagopus mutus*, *Perdix perdix*, *Turdus merula*, *Coccothraustes coccothraustes*, *Fringilla coelebs*

Stored: Museo Civico di Storia Naturale di Verona

Notes: bone breccia

IT 85 Notarchirico (Basilicate)

Type: o

Source: Belli et al. 1991

Date: MP Acheulean ca. 500 KA BP

Fauna: *Anas querquedula*

Det.: Cassoli

IT 86 Palidoro (Lazio)

Type: o

Sources: Cassoli 1977, 1980

Layer: 1

Date: LP Epigravettian $14C=14,580\pm130$, $13,950\pm100$ BPFauna: *Anser fabalis*, *Perdix perdix*, *Columba livia*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*

Layer: 2

Date: LP Epigravettian $14C=14,780\pm130$ BPFauna: *Columba livia*, *Melanocorypha calandra*, *Pyrhcorax pyrhcorax*

Layer: 3

Date: LP Epigravettian $14C=15,190\pm120$ BPFauna: *Perdix perdix*, *Columba livia*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*

Layer: 4

Date: LP Epigravettian $14C=15,310\pm160$ BPFauna: *Columba livia*, *Alauda arvensis*

Layer: 6

Date: LP Epigravettian $14C=15,660\pm130$ BPFauna: *Perdix perdix*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*

Layer: 7

Date: LP Epigravettian 14C=15,900±150 BP

Fauna: *Perdix perdix*, *Columba livia*

Layer: 8

Date: LP Epigravettian 14C=15,520±140 BP

Fauna: *Falco tinnunculus*, *Perdix perdix*, *Coturnix coturnix*, *Columba livia*, *Athene noctua*, *Melanocorypha calandra*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*, *Corvus corone*

Det.: Cassoli

IT 87 Pertugio della Volpe (Como)

Alt.: 200

Type: c

Sources: Arduini et al. 1981; Cassoli 1980; Lambrecht 1933; Portis 1887

Fauna: *Lagopus mutus*, *Perdix perdix*, *Gallus gallus*, *Columba palumbus*, *Upupa epops*, *Tyto alba*, *Alauda arvensis*, *Prunella collaris*?, *Luscinia luscinia*, *Turdus philomelos*, *Turdus pilaris*?, *Turdus* sp., *Pica pica*, *Passer* sp., *Miliaria calandra*?

Det.: Arduini?; Portis

Stored: Museo Civico di Storia Naturale di Milano (partly)

Notes: also known as Buco/Buca della Volpe

IT 88 Peschio Ranaro (Frosinone)

Alt.: 700

Type: c

Source: Bietti 1984b

Date: LP/Hol? Mesolithic 14C=9,730±150 BP

Fauna: *Columba* sp., *Hirundo* sp.

Det.: Cardini

IT 89 Pianosa (Liguria)

Type: c

Sources: Azzaroli 1978; Caterini 1921; Portis 1887; Stehlin 1928; Wolf 1938–41 (Simonelli 1889)

Date: LP/Hol

Fauna: *Anas* cf. *querquedula*, *Falco tinnunculus*?, *Falco* sp., *Vanellus* sp., *Columba palumbus*, *Turdus merula*, *Corvus* cf. *monedula*

Det.: Caterini, Simonelli

Notes: also known as Caverna di Cala Giovanna; remains probably Holocene

IT 90 Pofi (Lazio)

Type: c

Source: Cassoli 1980

Date: MP ca. 400 KA BP

Fauna: *Anas crecca*, *Aythya ferina*, *Fulica atra*
Notes: also known as Cava Pompei

IT 91 Punta di S. Giuliano (Lazio)

Type: o
Sources: Cassoli 1978; Lambrecht 1933 (Portis 1896)
Date: LP ?
Fauna: *Cygnus* sp.
Det.: Portis

IT 92 Ranuccio (Lazio)

Alt.: 225
Type: o
Sources: Bidittu et al. 1979; Cassoli 1980
Date: MP K-Ar=366,000<Ranuccio<528,000 BP "Mindel-interstadial", probably
IS 11-13
Fauna: *Anser fabalis*, *Anas penelope*, *Anas acuta*
Det.: Cassoli
Notes: in Anagni basin, also known as Fontana Ranuccio

IT 93 Rebibbia-Casal de' Pazzi (Lazio)

Alt.: 28
Type: o
Sources: Anzidei et al. 1984; Bietti 1985
Date: MP Late MP "Mousterian" "Riss" ca. 200-250 KA BP IS 8/9 ?
Fauna: *Anser albifrons*, *Anas penelope*, *Anas strepera*, *Anas crecca*
Det.: Cassoli
Notes: also known as Casal de' Pazzo

IT 94 Riparo Mezzena (Verona)

Type: c
Sources: Bon et al. 1991; Cassoli & Tagliacozzi 1994
Date: LP Mousterian (early LP)
Fauna: *Tetrao tetrix*, *Turdus viscivorus*, *Pyrhocorax graculus*
Stored: Museo Civico di Storia Naturale di Verona

IT 95 Riparo Salvini (Lazio)

Alt.: 35
Type: c
Source: Bietti 1984a
Date: LP LG Final Epigravettian "Dryas II" 14C=12,400±170 BP

Fauna: *Anas platyrhynchos*, *Perdix perdix*
 Det.: Cassoli

IT 96 Riparo Zampieri (Venezia)

Type: c

Sources: Bon et al. 1991; Cassoli & Tagliacozzi 1994

Date: LP Mousterian (early LP)

Fauna: *Falco tinnunculus*, *Columba livia*, *Hirundo rustica*, *Turdus merula*, *Turdus* sp.,
Pyrhocorax graculus, *Passer italiae*

Stored: Museo Civico di Storia Naturale di Verona

IT 97 Riparo di Fumane (Verona)

Alt.: 470

Type: c

Sources: Bartolomei et al. 1994; Bon et al. 1991; Cassoli & Tagliacozzi 1992a,c,
 1994a,b

Layer: D1d-e

Date: LP Aurignacian (base D1d) Gravettian/Epigravettian (D1d)

Fauna: *Buteo lagopus*, *Circus pygargus*, *Falco tinnunculus*, *Falco subbuteo*, *Tetrao tetrix*,
Coturnix coturnix, *Crex crex*, *Nyctea scandiaca*, *Asio otus*, *Aegolius funereus*, *Turdus*
viscivorus, *Pyrhocorax graculus*, *Carduelis chloris*, *Montifringilla nivalis*

Layer: D1-1c

Date: LP Aurignacian

Fauna: *Anas platyrhynchos*, *Buteo lagopus*, *Aquila chrysaetos*, *Circus pygargus*, *Falco tin-*
nunculus, *Falco subbuteo*, *Falco columbarius*, *Tetrao tetrix*, *Crex crex*, *Scolopax rus-*
ticola, *Asio otus*, *Hirundo rupestris*, *Turdus pilaris*, *Pica pica*, *Pyrhocorax graculus*,
Corvus monedula, *Loxia curvirostra*, *Montifringilla nivalis*

Layer: D3-2

Date: LP Aurignacian 14C=31,700+1,200-1100, 32,300±400 BP (D3b)

Fauna: *Falco vespertinus*, *Falco tinnunculus*, *Falco subbuteo*, *Falco columbarius*, *Tetrao*
tetrix, *Coturnix coturnix*, *Crex crex*, *Strix aluco*, *Asio otus*, *Turdus viscivorus*, *Pyrho-*
corax graculus, *Montifringilla nivalis*

Layer: D6-3

Date: LP Aurignacian 14C=31,700+1,200-1,100, 32,300±400 BP (D3b)

Fauna: *Anas querquedula*, *Buteo lagopus*, *Aquila chrysaetos*, *Falco tinnunculus*, *Falco*
subbuteo, *Falco columbarius*, *Tetrao tetrix*, *Coturnix coturnix*, *Crex crex*, *Actitis hy-*
poleucos, *Tringa glareola*, *Asio otus*, *Turdus viscivorus*, *Nucifraga caryocatactes*,
Pyrhocorax graculus, *Corvus monedula*, *Carduelis cannabina*, *Montifringilla nivalis*

Layer: D7-6

Date: LP Aurignacian 14C=32,300±500 BP (D6)

Fauna: *Buteo lagopus*, *Aquila chrysaetos*, *Falco vespertinus*, *Falco tinnunculus*, *Falco*
subbuteo, *Falco columbarius*, *Tetrao tetrix*, *Coturnix coturnix*, *Rallus aquaticus*, *Crex*
crex, *Actitis hypoleucos*, *Asio otus*, *Eremophila alpestris*, *Turdus viscivorus*, *Pyrhoco-*
rax graculus, *Corvus monedula*, *Loxia curvirostra*, *Pyrhula pyrrhula*, *Montif-*
ringilla nivalis

Layer: A2-1

Date: LP Aurignacian 14C=40,000+4,000-3,000, 36,500±600, 31,600±400, 32,800±400, 32,100±500 BP (A2), 31,900±500 BP (A1)

Fauna: *Buteo lagopus*, *Falco vespertinus*, *Falco tinnunculus*, *Falco subbuteo*, *Tetrao tetrix*, *Lagopus mutus*, *Perdix perdix*, *Rallus aquaticus*, *Crex crex*, *Scolopax rusticola*, *Vanellus vanellus*, *Columba oenas*, *Strix aluco*, *Asio otus*, *Dendrocopos leucotos*, *Lullula arborea*, *Hirundo rupestris*, *Turdus viscivorus*, *Turdus pilaris*, *Pica pica*, *Garrulus glandarius*, *Nucifraga caryocatactes*, *Pyrrhonorax graculus*, *Corvus monedula*, *Loxia pytyopsittacus*, *Montifringilla nivalis*

Layer: A3

Date: LP Aurignacian

Fauna: *Falco tinnunculus*, *Falco subbuteo*, *Tetrao tetrix*, *Lagopus mutus*, *Perdix perdix*, *Coturnix coturnix*, *Crex crex*, *Asio otus*, *Nucifraga caryocatactes*, *Pyrrhonorax graculus*, *Pyrrhula pyrrhula*, *Montifringilla nivalis*

Layer: A4I-4

Date: LP uncertain (transitional MP/UP ?) stone tool culture

Fauna: *Tetrao tetrix*, *Alectoris graeca*, *Perdix perdix*, *Crex crex*, *Pyrrhonorax graculus*

Layer: A4II

Date: LP Mousterian

Fauna: *Tetrao tetrix*, *Perdix perdix*, *Crex crex*, *Scolopax rusticola*, *Asio otus*, *Pica pica*, *Pyrrhonorax graculus*

Layer: A6-5

Date: LP Mousterian

Fauna: *Falco vespertinus*, *Falco subbuteo*, *Tetrao tetrix*, *Lagopus mutus*, *Crex crex*, *Scolopax rusticola*, *Oriolus oriolus*, *Pyrrhonorax graculus*, *Corvus corax*

Layer: A7

Date: LP Mousterian

Fauna: *Tetrao tetrix*, *Pyrrhonorax graculus*

Layer: A9-8

Date: LP Mousterian

Fauna: *Tetrao tetrix*, *Alectoris graeca*, *Pyrrhonorax graculus*

Layer: A10

Date: LP Mousterian

Fauna: *Falco subbuteo*, *Tetrao tetrix*, *Pyrrhonorax graculus*

Layer: A11

Date: LP Mousterian

Fauna: *Tetrao tetrix*, *Crex crex*, *Recurvirostra avosetta*, *Pyrrhonorax graculus*

Layer: A13-12

Date: LP Mousterian, ca. 70 KA BP ?

Fauna: *Aquila chrysaetos*, *Lagopus mutus*, *Turdus viscivorus*, *Pyrrhonorax graculus*

Notes: *Hystrix* present

Layer: rim; unstratified

Date: LP

Fauna: *Aythya ferina*, *Alectoris graeca*, *Pyrrhonorax graculus*

Det.: Cassoli

Notes: also known as Abri de Fumane

IT 98 Rose-Mary (?)

Type: c

Source: Koby 1957a

Fauna: *Gyps fulvus*

IT 99 Saccopastore (Lazio)

Type: c

Sources: Cassoli 1978, 1980

Layer: E

Date: LP Interglacial Riss/Würm (perhaps IS 5a or 5c?), estimated age ca. 90–100 KA, Mousterian

Fauna: *Anas platyrhynchos*, *Aquila heliaca*

Det.: Cassoli

IT 100 Sambughetto Valstrona (Novara)

Sources: Cadeo 1956; Musil 1980b

Date: LP Mousterian "Würm I/II Interstadial"

Fauna: *Tetrao tetrix*

IT 101 Sedia del Diavolo (Lazio)

Source: Cassoli 1978 (Blanc 1955a,b)

Date: MP "Riss II-III interstadial" IS 8/9 ?

Fauna: *Branta leucopsis*, *Cygnus columbianus*

Det.: Blanc

IT 102 Serbaro di Romagnano (Verona)

Type: c

Source: Bon et al. 1991

Date: MP

Fauna: *Anas platyrhynchos*

Stored: Museo Civico di Storia naturale di Verona

IT 103 S. Cosimato (Valle dell'Aniene) (Lazio)

Type: o

Source: D'Ossat 1911

Date: MP Possibly IS 13 ?

Fauna: *Vanellus vanellus*, *Loxia* sp.

Stored: Museo Geologico della Università di Roma

Notes: lignite deposit

IT 104 S. Croce di Bisceglie (Puglia)

Type: c

Sources: Cassoli 1978, 1980; Mallegni, Piperno & Segre 1987; Segre & Cassoli 1987

Layer: 8

Date: LP LG Epigravettian, Dryas 3 (?)

Fauna: *Anser erythropus*, *Perdix perdix*, *Alectoris graeca*, *Columba livia*, *Athene noctua*, *Pyrhacorax graculus*

Det.: Cassoli ?

IT 105 Tabuna a Ragusa (Sicilia)

Type: c

Source: Cassoli 1980

Date: LP ?

Fauna: *Anas crecca*, *Anas penelope*

IT 106 Tana del Colombo (Liguria)

Alt.: 248

Type: c

Sources: Baissas et al. 1986; Morelli 1890a; Musil 1980b; Vaufrey 1928; Wolf 1938–41

Date: LP Mousterian

Fauna: *Alectoris graeca*, *Alectoris rufa*, *Columba livia*, *Columba oenas*, *Falco naumanni*, *Alauda arvensis*, *Hirundo rupestris*, *Turdus philomelos*, *Sturnus vulgaris*, *Corvus corone*, *Corvus frugilegus*, *Garrulus glandarius*, *Pica pica*, *Pyrhacorax graculus*, *Tichodroma muraria*, *Coccothraustes coccothraustes*, *Miliaria calandra*, *Emberiza citrinella*, *Fringilla montifringilla*, *Pyrhacorax pyrrhacorax*

Notes: possibly mixed with Holocene material ?

Layer: 16–19

Date: MP “Mindel-Mindel/Riss” IS 11–12

Fauna: *Columba livia*

Notes: also known as Grotte du Colombo

IT 107 Tane del Diavolo (Orvieto)

Type: c

Source: Wolf 1938–41

Fauna: *Columba livia*, *Columba* cf. *oenas*, *Pyrhacorax pyrrhacorax*

IT 108 Taurisano a Maglie (Puglia)

Type: c

Source: Cassoli 1980

Date: LP ?

Fauna: *Aquila chrysaetos*

IT 109 Tecchia di Equi (Toscana)

Alt.: 350

Type: c

Sources: Cassoli 1980; Del Campana 1928; Lambrecht 1933; Musil 1980b; Vaufrey 1928; Wolf 1938–41 (Fracassi 1922, Regalia 1911)

Date: LP LG “Bühlstadium” (Aurignacian-Mousterian)

Fauna: *Anas crecca*, *Anas platyrhynchos*, *Haliaeetus albicilla*, *Buteo buteo*, *Aquila chrysaetos*, *Falco subbuteo*, *Falco tinnunculus*, *Falco columbarius*, *Lagopus mutus*,

Tetrao tetrix, *Tetrao urogallus*, *Alectoris graeca*, *Perdix perdix*, *Crex crex*, *Grus grus*, *Actitis hypoleucos*, *Columba livia*, *Columba oenas*, *Columba palumbus*, *Otus scops*, *Bubo bubo*, *Apus melba*, *Asio flammeus*, *Hirundo rupestris*, *Prunella collaris*, *Luscinia luscinia*, *Turdus merula*, *Turdus pilaris*, *Turdus philomelos*, *Corvus corax*, *Corvus corone*, *Corvus frugilegus*, *Corvus monedula*, *Pica pica*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Fringilla coelebs*, *Passer italiae*

Det.: Regalia

IT 110 Terramara di Castelaccio (Lazio)

Type: c

Source: Portis 1887

Fauna: *Anser fabalis*

IT 111 Torbiera della Cataragna (Brescia)

Type: o

Source: Lambrecht 1933

Fauna: *Fulica atra*, *Grus grus*

Det.: Portis

Notes: perhaps Holocene ?

IT 112 Torre Nave (Calabria)

Alt.: 10

Type: c

Sources: Bulgarelli 1972; Cassoli 1972, 1980

Layer: 13

Date: LP Mousterian (typical)

Fauna: *Ixobrychus minutus*, *Anas platyrhynchos*, *Falco tinnunculus*, *Falco subbuteo*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Tetrax tetrax*, *Crex crex*, *Pterocles orientalis*, *Columba palumbus*, *Columba livia*, *Strix aluco*, *Athene noctua*, *Dendrocopos medius*, *Picus viridis*, *Apus melba*, *Hirundo rustica*, *Turdus merula*, *Turdus philomelos*, *Turdus viscivorus*, *Turdus pilaris*, *Carduelis chloris*, *Pyrhcorax graculus*, *Pyrhcorax pyrrhcorax*, *Garrulus glandarius*, *Corvus monedula*, *Corvus frugilegus*, *Corvus corax*

Layer: 19

Date: LP Mousterian

Fauna: *Apus melba*

Det.: Cassoli

IT 113 Torre in Pietra (Lazio)

Type: o

Sources: Cassoli 1978, 1980

Layer: d

Date: MP/LP Mousterian "Riss/Würm" or IS 7

Fauna: *Phalacrocorax carbo*, *Ixobrychus minutus*, *Cygnus cygnus*, *Anser fabalis*, *Anser albifrons*, *Anas platyrhynchos*, *Anas penelope*, *Anas acuta*, *Aythya nyroca*, *Pandion*

haliaetus, *Alectoris graeca*, *Perdix perdix*, *Crex crex*, *Alauda arvensis*, *Turdus pilaris*,
Turdus iliacus, *Turdus merula*, *Nucifraga caryocatactes*

Layer: m

Date: MP Acheulean "Kataglacial Riss I" IS 9–10 ?

Fauna: *Anser albifrons*, *Anas platyrhynchos*, *Anas acuta*, *Aythya nyroca*

Det.: Cassoli

IT 114 Val d'Arno (Arezzo)

Type: o

Sources: Brodkorb 1978; Lambrecht 1933; Mourer-Chauviré 1980b (Portis 1889, Regalia 1902)

Date: EP "Upper Villafranchian", Valdarno superiore

Fauna: *Corvus pliocaenus*

Det: Portis

Notes: also known as Il Tasso

IT 115 Valdiporro (Verona)

Type: c

Source: Bon et al. 1991

Date: LP LG, latest LG

Fauna: *Coccothraustes coccothraustes*

Stored: Museo Civico di Storia Naturale di Verona

IT 116 Valle Radice (Sora) (Frosinone)

Alt.: 326

Type: c

Sources: Bidittu, Cassoli & Malpieri 1967; Cardini 1961; Cassoli 1980; Segre, Bidittu & Cassoli 1984

Date: LP "cold" Mousterian

Fauna: *Tetrao urogallus*, *Tetrao tetrax*, *Alectoris graeca*, *Perdix perdix*, *Strix aluco*,
Pyrhocorax pyrrhocorax, *Pyrhocorax graculus*

Det.: Cassoli

Notes: also known as Cava La Rocca

IT 117 Velika Jama (Udine)

Alt.: 372

Type: c

Sources: Bon et al. 1991; Lambrecht 1933; Wolf 1938–41 (Fabiani 1912)

Date: LP/Hol (LP-Bronze age)

Fauna: *Aquila chrysaetos*

Stored: Museo Friulano di Storia Naturale di Udine, Museo di Paleontologia dell'Università di Padova

IT 118 Vitinia (Lazio)

Type: o

Sources: Caloi et al. 1983

Layer: e

Date: MP Late MP IS 7 ?

Fauna: *Podiceps cristatus*, *Ardea purpurea*, *Anser* cf. *erythropus*, *Anser* cf. *albifrons*, *Anser* cf. *fabalis*, *Anas platyrhynchos*, *Anas penelope*, *Aythya ferina*, *Fulica atra*, *Gallinago gallinago*, *Turdus iliacus*, *Carduelis chloris*

Det.: Cuggiani; Cassoli

Stored: Museo di Paleontologia dell'Università di Roma, Vertebrati (MPUR/V)

IT 119 Abri Soman (Verona)

Type: c

Source: Cassoli & Tagliacozzi 1992b

Date: LP Epigravettian 14C=11,880±170–10,370±110 BP

Fauna: *Aquila chrysaetos*

Det: Cassoli

Notes: also known as Riparo di Soman

IT 120 Grotta Maggiore di San Bernardino (Vicenza)

Alt.: 135

Type: c

Source: Cassoli & Tagliacozzi 1994c

Layer: Unit II-III

Date: LP

Fauna: *Anser anser*, *Anas querquedula*, *Anas platyrhynchos*, *Buteo buteo*, *Tetrao tetrix*, *Alectoris graeca*, *Nucifraga caryocatactes*, *Pyrhocorax graculus*

Layer: Unit IV-V

Date: LP/MP IS 4 ? and 6

Fauna: *Anas platyrhynchos*, *Buteo buteo*, *Tetrao tetrix*

Layer: Unit VI

Date: MP IS 6

Fauna: *Anas querquedula*, *Aquila chrysaetos*, *Falco subbuteo*, *Tetrao tetrix*, *Athene noctua*, *Apus melba*

Det: Cassoli

IT 121 Montecarlo (Arezzo)

Type: o

Sources: Brodkorb 1978; Lambrecht 1933 (Portis 1889, Regalia 1902)

Date: EP/LPI "Upper Villafranchian" Valdarno superiore

Fauna: *Aythya aretina*, *Aythya sepulta*

Det: Portis

Stored: Museum of Geology and Paleontology, University of Firenze (IGF)

Notes: in Arno valley; also known as Valdarno, Val d'Arno

IT 122 Monte Reale (Sardegna)

Type: o

Sources: Lydekker 1891b; Milne-Edwards 1867–71; Mlíkovský 1995b (Wagner 1832, 1833, Studiati 1857)

Fauna: *Tadorna* sp.

Det: Wagner; Mlíkovský

Notes: near Cagliari; may be identical with IT 12; Wagner also reported *Anas* sp., *Aquila* sp., *Buteo* sp., *Sterna* sp., *Strix* sp., *Picus* sp., *Alauda* sp., *Turdus* sp., *Corvus* sp. and *Fringilla* sp. from this site; furthermore, Milne-Edwards (1867–71) reported *Upupa epops* from “brèches de Sardaigne”, possibly from this site; an owl similar to *Nyctea scandiaca*, probably from this site (Milne-Edwards 1867–71), is presumably *Bubo insularis*

IT 123 Spinagallo (Sicilia)

Type: c

Source: Pavia in press

Date: MP, ca. 500 KA BP (AAR date)

Fauna: *Geronticus eremita*, *Anser erythropus*, *Branta* sp., *Anas querquedula*, *Anas penelope*, *Marmaronetta angustirostris*, *Accipiter gentilis*, *Accipiter nisus*, *Falco tinnunculus*, *Falco subbuteo*, *Falco eleonorae*, *Falco columbarius*, *Coturnix coturnix*, *Rallus aquaticus*, *Grus* sp., *Recurvirostra avosetta*, *Scolopax rusticola*, *Larus minutus*, *Larus ridibundus*, *Columba livia*, *Columba livia/oenas*, *Columba palumbus*, *Streptopelia turtur*, *Tyto* n. sp., *Otus scops*, *Athene* n. sp., *Asio otus*, cf. *Surnia ulula*, cf. *Caprimulgus europaeus*, *Apus melba*, *Apus apus/pallidus*, *Dendrocopos leucotos*, *Picus viridis*, *Calandrella brachydactyla*, *Lullula arborea*, *Hirundo* sp., *Anthus* sp., *Prunella modularis*, *Erithacus rubecula*, cf. *Oenanthe hispanica*, *Monticola solitarius*, *Turdus* spp., *Sylvia* sp., *Phylloscopus sibilatrix/collybita*, *Lanius senator*, *Pica pica*, *Pyrrhonorax graculus*, *Corvidae* n. sp., *Sturnus* sp., *Petronia petronia*, *Fringilla coelebs/montifringilla*, *Serinus* sp., *Carduelis chloris*, *Carduelis* sp., *Pyrrhula pyrrhula*, *Coccothraustes coccothraustes*, *Emberiza* spp.

Det: Pavia

IT 124 Strette (Arezzo)

Type: o

Sources: Brodkorb 1978; Lambrecht 1933 (Portis 1889, Regalia 1902)

Date: EP/LPI “Upper Villafranchian” Valdarno superiore

Fauna: *Aythya aretina*

Det: Portis

JAPAN

JA 1 Akiyoshidai (Yamaguchi)

Source: Rich et al. 1986

Fauna: *Phasianus* sp.

JA 2 Aogashima (Tokyo)

Source: Rich et al. 1986 (Kobayashi 1971)

Fauna: *Diomedea* sp.

JA 3 Gohezudo (Iejima)

Source: Rich et al. 1986

Fauna: *Corvus macrorhynchos*

JA 4 Hahajima (Tokyo)

Source: Rich et al. 1986

Fauna: *Calonectris leucomelas*, *Pterodroma leucoptera*, *Buteo buteo*, *Corvus macrorhynchos*

JA 5 Hamano-ko (Shizuoka)

Alt.: 70

Type: o

Source: Hasegawa 1964

Date: LP

Fauna: *Falco* sp.

Det.: Hasegawa

Notes: Gansuiju formation, lower gravels

JA 6 Hujisawa (Kanagawa)

Sources: Ono 1980b; Rich et al. 1986

Fauna: *Phalacrocorax carbo*

Notes: also known as Fujisawa

JA 7 Kawasaki (Kanagawa)

Source: Rich et al. 1986

Fauna: *Anas* sp.

JA 8 Mikkabi (Shizuoka)

Type: c

Source: Hasegawa 1972

Fauna: *Syrnaticus soemmerringii scintillans*

Notes: also known as Tadaki quarry

JA 9 Minatogawa (Okinawa)

Sources: Hasegawa 1980; Rich et al. 1986

Date: LP 14C=16,600±300–18,250±650 BP

Fauna: *Phalacrocorax* sp., *Nycticorax nycticorax*, *Buteo buteo*, *Rallus* sp., *Scolopax mira*, *Otus bakkamoena*, *Hypsipetes amaurotis*, *Zoothera dauma*, *Erithacus* sp., *Sturnus cineraceus*, *Garrulus* cf. *lidthi*, *Corvus macrorhynchos*

JA 10 Nojiri-ko (Nagano)

Type: o

Sources: Ono 1980a,b; Rich et al. 1986

Fauna: *Phalacrocorax carbo*, *Anser fabalis*, *Syrnaticus soemmerringii*



JAPAN (JA)

JA 11 Ogano (Tochigi)

Type: c

Source: Hasegawa 1972

Fauna: *Corvus* sp., *Fringillidae* sp.

Notes: also known as Yoshizawa-Sekkai quarry

JA 12 Pinza-abu (Okinawa)

Type: c

Sources: Rich et al. 1986; Ono & Hasegawa 1985a

Date: LP

Fauna: *Phalacrocorax capillatus*, *Anas* sp., *Buteo buteo*, *Haliaeetus* cf. *albicilla*, *Coturnix coturnix*, *Grus* sp., *Gallirallus* cf. *okinawae*, *Rallina eurizonoides*, *Rallus* cf. *aquaticus*, *Gallinula chloropus*, *Porzana fusca*, *Porzana* sp. ?, *Fulica* sp. ?, *Fulica atra*, *Scolopax* cf. *rusticola*, *Sterna* sp., *Strix* sp., *Asio* cf. *otus*, *Streptopelia orientalis*, *Columba* cf. *janthina*, *Corvus macrorhynchus*

JA 13 Shimozibaru-do (Okinawa)

Type: c

Sources: Ono et al. 1982; Rich et al. 1986

Fauna: *Anas* cf. *poecilorhyncha*

Notes: also known as Shimojiburu cave

JA 14 Shiraiwa (Shizuoka)

Source: Rich et al. 1986

Fauna: *Aquila* cf. *heliaca*, *Phasianus* sp.**JA 15 Shiriyazaki (Aomori)**

Alt.: 30

Type: o

Sources: Hasegawa 1972; Hasegawa et al. 1988; Rich et al. 1986

Layer: Loc 3-1

Fauna: *Gavia stellata*, *Podiceps* sp., *Puffinus griseus*, *Phalacrocorax capillatus*, *Phalacrocorax pelagicus*, *Anser* sp., *Anas* sp., *Buteo buteo*, *Haliaeetus* cf. *pelagicus*, *Phasianus* sp., *Larus* sp., *Uria aalge*, *Synthliboramphus antiquus*, *Cerorhinca* cf. *monocerata*, *Mancalla* sp., *Ploceidae* sp.

Det.: Hasegawa ?

Notes: also known as Shiriya quarry

JA 16 Taishakukyo (Hiroshima)

Type: c

Sources: Nokariya & Ono 1980; Rich et al. 1986

Layer: A

Fauna: *Aquila* sp., *Sturnus cineraceus*, *Corvus macrorhynchos*

Layer: B

Fauna: *Phasianus colchicus*, *Sturnus cineraceus*

Layer: c

Fauna: *Aquila* sp., *Accipiter* sp., *Syrnaticus soemmerringii*, *Phasianus colchicus*, *Otus scops*, *Sturnus cineraceus*

Layer: D

Fauna: *Phasianus colchicus*

Layer: E

Fauna: *Syrnaticus soemmerringii*, *Phasianus colchicus*, *Otus scops*, *Garrulus glandarius*

Layer: F

Fauna: *Aythya* sp., *Aquila* sp., *Phasianus colchicus*, *Asio* sp., *Otus scops*, *Sturnus cineraceus*, *Garrulus glandarius*

Layer: G

Fauna: *Anas* sp., *Aquila* sp., *Phasianus colchicus*, *Garrulus glandarius*

Layer: H

Fauna: *Syrnaticus soemmerringii*, *Phasianus colchicus*, *Sturnus cineraceus*, *Garrulus glandarius*

Layer: I

Fauna: *Anser* sp., *Aquila* sp., *Syrnaticus soemmerringii*, *Phasianus colchicus*, *Hypsipetes amaurotis*, *Turdus naumanni*, *Parus varius*, *Sturnus philippensis*, *Sturnus cineraceus*, *Garrulus glandarius*, *Carpodacus erythrinus*, *Uragus sibiricus*, *Eophona personata*, *Emberiza cioides*

Layer: J

Fauna: *Anser* sp., *Syrnaticus soemmerringii*, *Phasianus colchicus*, *Hypsipetes amaurotis*

Layer: K

Fauna: *Phasianus colchicus*, *Asio* sp.

Layer: L

Fauna: *Phasianus colchicus*, *Garrulus glandarius*

Notes: also known as Taishaku-Kannondo

JA 17 Tsukinoki (Akita)

Sources: Ono 1985; Rich et al. 1986 (Takayasu 1980)

Date: LP after R/W-interglacial

Fauna: *Ciconia* sp.

JA 18 Yage (Shizuoka)

Sources: Rich et al. 1986; Tomida 1978

Fauna: *Haliaeetus* cf. *pelagicus*, *Spizaetus* cf. *nipalensis*, *Gyps* sp., *Phasianus* cf. *colchicus*

JA 19 Yoshitaka-mukaida (Chiba)

Sources: Ono et al. 1984; Rich et al. 1986

Fauna: *Gavia* cf. *pacifica*

JORDAN

JO 1 Azraq 18 (Azraq)

Type: o

Sources: Byrd & Garrard 1990; Garrard 1991; Garrard et al. 1988a,b

Date: LP LG Epipalaeolithic/Natufian

Fauna: *Anas acuta*, *Anas querquedula*

Det.: Garrard & Montague

Notes: also known as Ain el-Saratan

JO 2 Tor Faraj

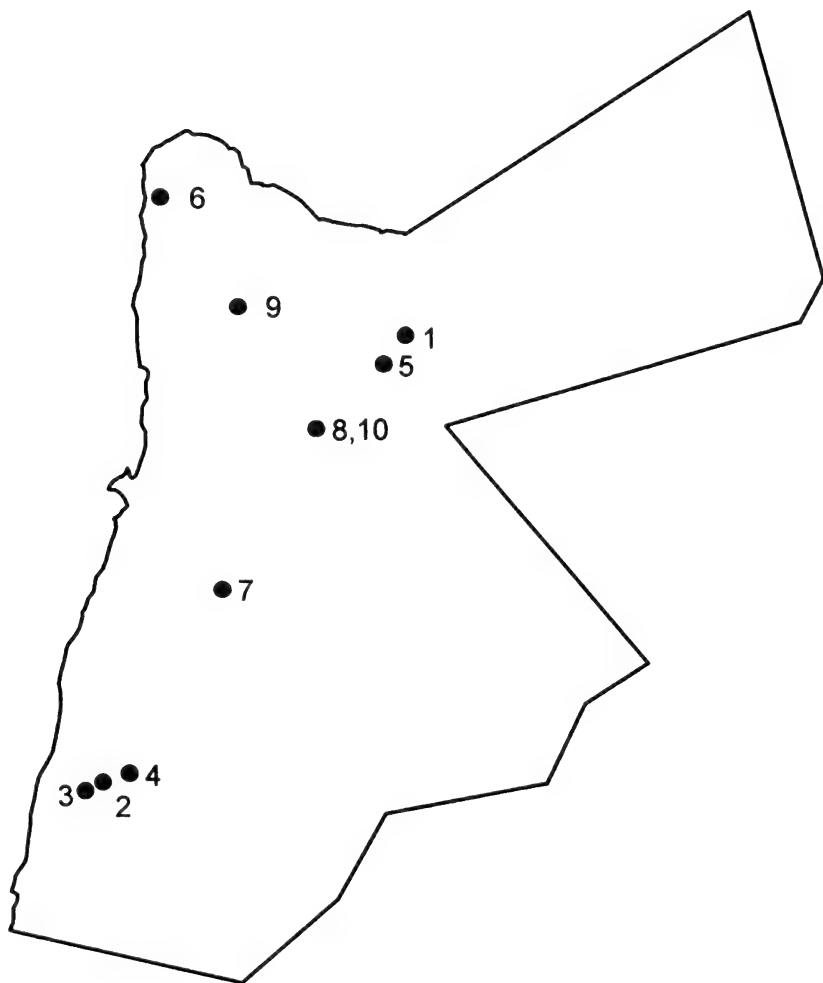
Alt.: 1,000

Type: c

Source: Henry 1992

Date: LP Mousterian ca. 65,000 BP (amino acid racemization)

Fauna: *Struthio* sp.



JORDAN (JO)

JO 3 Tor Hamar (J 431)

Alt.: 950

Type: c

Sources: Henry 1989; Henry & Garrard 1988

Date: LP UP Mushabian 14C=12,680±320 BP

Fauna: *Alectoris chukar***JO 4 Tor Sabiha**

Alt.: 1,300

Type: c

Source: Henry 1992

Date: LP Mousterian ca. 65 000 BP (amino acid racemization)

Fauna: *Struthio* sp.**JO 5 Uwaynid 18 (Azraq)**

Type: o

Sources: Byrd & Garrard 1990; Garrard et al. 1988a,b

Date: LP LUP 14C=19,500±250, 19,800±350, 23,200±400 BP

Fauna: *Rallus aquaticus*

Det.: Garrard & Montague

JO 6 Wadi Al Hammeh 27

Alt.: -84

Type: o

Sources: Edwards 1989, 1991; Edwards et al. 1988

Date: LP LG Early Natufian 14C=11,920±150, 11,950±160, 12,200±160 BP

Fauna: *Ciconia ciconia*, Anatinae, *Alectoris rufa*, *Alectoris chukar*, *Fulica atra*, *Larus canus*, *Bubo bubo*

Det.: Rich; West

Notes: the 14C dates are from the upper part of the deposit; that both *Alectoris chukar* and *rufa* really occur at this site is certainly very unlikely.**JO 7 Wadi Hasa, WHS Site 1065**

Type: o

Source: Clark et al. 1988

Date: LP Epipalaeolithic, 14C=15,580–16,900 BP

Fauna: *Struthio* sp., *Columba livia***JO 8 Wadi el-Jilat 6 (Azraq)**

Type: o

Sources: Byrd & Garrard 1990; Garrard et al. 1988a,b

Layer: Upper

Date: LP Epipalaeolithic 14C=15,470–16,700 BP, lower deposits perhaps up to 19,000 BP

Fauna: *Struthio camelus*, *Syrhaptes paradoxus*, *Pterocles alchata*, *Pterocles orientalis*, *Galerida cristata*, Phasianidae

Det.: Garrard & Montague

Notes: also known as Wadi Jilat 6

JO 9 'Ain Ghazal

Type: o

Source: Tchernov 1993a

Date: LP/Hol PPNB 14C=7,820–11,875 BP

Fauna: cf. *Anas* sp., cf. *Aythya* sp., *Neophron percnopterus*, *Circus* sp., *Accipiter* sp., *Accipiter gentilis*, *Aquila* cf. *rapax*, *Aquila chrysaetos*, *Alectoris chukar*, *Coturnix coturnix*, cf. *Otis tarda*, cf. *Chlamydotis undulata*, *Columba livia*, cf. *Asio* sp., *Corvus ruficollis*, *Corvus corone*

Notes: probably entirely Holocene

JO 10 Wadi el-Jilat 22 (Azraq)

Type: o

Source: Garrard & Byrd 1992

Date: LP Epipaleolithic 14C=11,920–13,540 BP

Fauna: *Anas platyrhynchos*, *Accipitridae*, *Pterocles* sp.

Det: West

KAZAKHSTAN

KA 1 Karaungur (Dshambul)

Source: Burchak-Abramovich 1975 (Auberekova 1965)

Date: LP

Fauna: *Alectoris graeca*, *Phasianus colchicus*

KIRGHIZIA

KI 1 Chon-Chunkur

Type: c

Source: Jánosy & Topal 1990

Layer: 1

Date: LP/Hol

Fauna: *Hirundo* cf. *rustica*

Det.: Jánosy

KI 2 Syurpriz

Type: c

Source: Jánosy & Topal 1990

Layer: 3

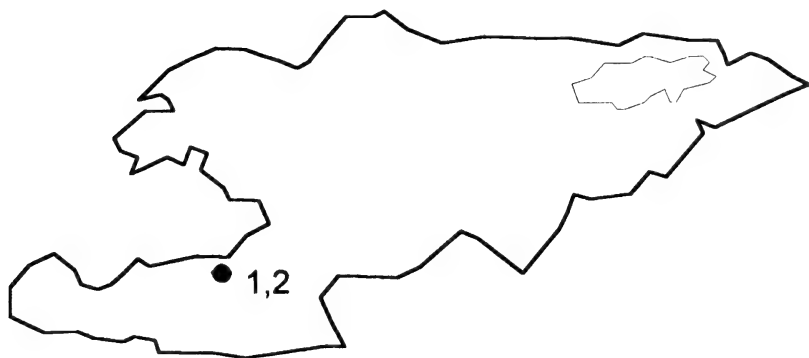
Date: LP/Hol

Fauna: *Apus melba*, *Garrulus glandarius*

Det.: Jánosy



KAZAKHSTAN (KA)



KIRGHIZIA (KI)

LEBANON

[For map see p. 287.]

LI 1 Antelias Cave

Type: c

Source: Lambrecht 1933

Date: LP UP-Epipalaeolithic

Fauna: *Buteo* sp., *Alectoris graeca*, *Columba* sp.

LI 2 Ksâr 'Akil

Alt.: 60

Type: c

Sources: Hooijer 1961; Kersten 1991

Layer: II

Date: LP Epipalaeolithic, Early Kebaran

Fauna: *Phalacrocorax pygmaeus*, *Alectoris chukar*, *Garrulus glandarius*/*Pica pica*

Layer: V

Date: LP Epipalaeolithic, Transitional Kebaran

Fauna: *Gyps fulvus*, *Aegypius monachus*, *Aquila* cf. *chrysaetos*, *Aquila* sp., *Bubo bubo*

Layer: VIII

Date: LP LUP

Fauna: *Anas platyrhynchos*, *Aquila* sp., *Columba palumbus*

Layer: IX

Date: LP LUP 14C= ca. 31–32,000 BP ?

Fauna: *Cygnus* sp., *Anser/Branta* sp., *Gyps fulvus*, *Aquila* cf. *chrysaetos*, *Aquila* sp., *Alectoris chukar*, *Columba* sp., *Columba palumbus*

Layer: X

Date: LP LUP

Fauna: cf. *Otis tarda*

Layer: XI

Date: LP LUP

Fauna: *Gyps fulvus*, *Aegypius monachus*

Layer: XII

Date: LP LUP

Fauna: *Gyps fulvus*, *Aegypius monachus*, *Aquila* cf. *chrysaetos*

Layer: XIII

Date: LP LUP

Fauna: *Gyps fulvus*

Layer: XVI

Date: LP EUP

Fauna: *Gyps fulvus*

Layer: XVII

Date: LP EUP

Fauna: *Gyps fulvus*, *Columba* sp., *Columba palumbus*

Layer: XVIII

Date: LP EUP

Fauna: *Anas platyrhynchos*

Layer: XIX

Date: LP EUP

Fauna: *Anas platyrhynchos*, *Gyps fulvus*, *Columba* sp.

Layer: XXIII

Date: LP Transitional UP

Fauna: *Aegypius monachus*

Layer: XXVI

Date: LP Mousterian Phase 2/Tabun C type 14C=43,750±1,500, 47,000±9,000 BP

Fauna: Sylviidae sp.

Layer: XXVII

Date: LP Mousterian Phase 2/Tabun C type

Fauna: *Gyps fulvus*, *Aegypius monachus*, *Aquila* cf. *chrysaetos*, *Turdus* sp.

Layer: XXIX

Date: LP Mousterian

Fauna: *Aquila* cf. *chrysaetos*

Layer: XXXII

Date: LP Mousterian 14C=49,000±5,000, 51,000±4,000 BP

Fauna: *Sturnus vulgaris*

Det: Kersten

LI 3 Saaidé II (Béqaa valley)

Alt.: 1,035

Type: o

Source: Schroeder 1991

Date: LP LG Natufian

Fauna: *Anser* sp., *Aix sponsa*, *Anas acuta*, *Anas crecca*, *Aquila* sp., *Falco* sp., Otididae sp., *Columba* sp.

Det: Churcher

LIBYA

[For map see p. 342.]

LB 1 Giarabub (Cyrenaica)

Type: o

Sources: Brodkorb 1978; Sauer 1969

Fauna: *Struthio* sp. ?

Det.: Moltoni; Sauer

Notes: eggshell described as "*Psammornis lybicus* Moltoni, 1928" but indistinguishable from *Struthio* (Sauer 1969)

LUXEMBOURG

[For map see p. 342.]

LU 1 Oetrange

Type: c

Sources: Ferrant, Friant & Thill 1946; Friant 1954a,b; Grimm 1970 (Ferrant & Friant 1940)

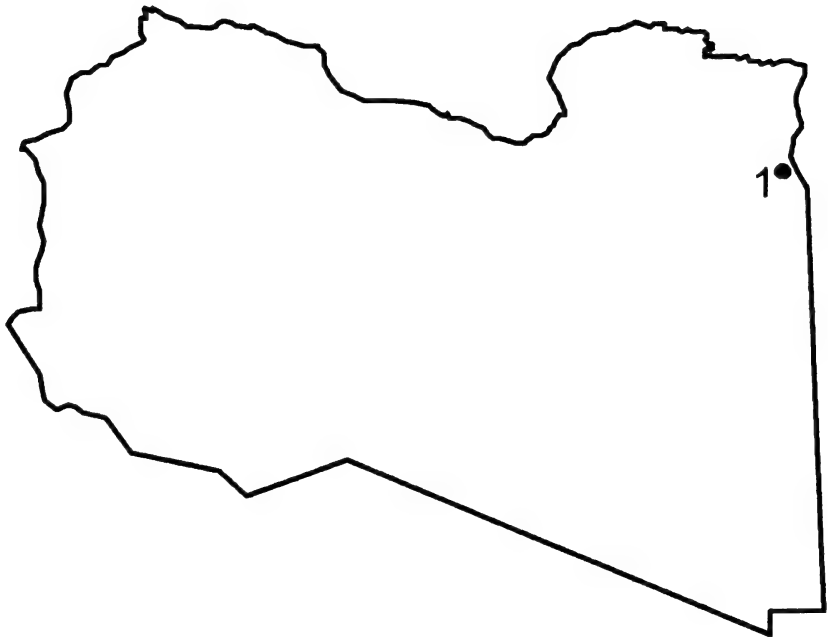
Date: LP Aurignacian-Magdalenian

Fauna: *Anser* sp., *Buteo rufinus*, *Tetrao urogallus*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Bonasa bonasia*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Phasianus* sp., *Charadrius morinellus*, *Buteo buteo*, *Asio otus*, *Asio flammeus*, *Picus* sp., *Turdus merula*, *Garrulus glandarius*, *Pyrhocorax pyrrhocorax*

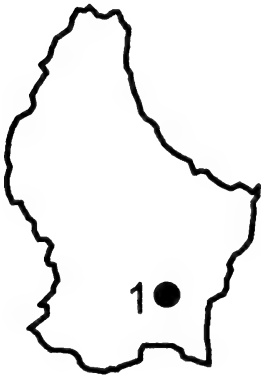
MACEDONIA

MK 1 Makarovec

Alt.: 300



LIBYA (LI)



LUXEMBOURG (LU)



MACEDONIA (MK)

Type: c

Sources: Malez 1983a, 1986b

Layer: 4

Date: LP "Virm I" = Würm I

Fauna: *Accipiter gentilis*

Det.: Malez

MALTA

MA 1 Benghisa gap

Type: c

Source: Lambrecht 1933

Fauna: *Cygnus equitum*, *Cygnus* sp., *Branta leucopsis*, *Gyps melitensis*, *Tetrax tetrax*

Det.: Lambrecht; Bate

MA 2 Calafra fissure

Type: c

Source: Lambrecht 1933

Fauna: *Cygnus equitum*

MA 3 Gandia fissure

Type: c

Sources: Friant 1952; Lambrecht 1933; Northcote 1992; Vaufrey 1929 (Despott 1929)

Fauna: *Cygnus falconeri*, *Cygnus equitum*, *Cygnus* sp., *Branta leucopsis*, *Marmaronetta* sp., *Gyps* sp., *Gyps melitensis*

Notes: also known as Ta Gandia and Ta'Kandja

MA 4 Ghar Dalam

Type: c

Sources: Fischer & Stephan 1974; Lambrecht 1933; Northcote 1992; Olson 1976; Vaufrey 1929; Wolf 1938–41 (Bate 1916b)



MALTA (MA)

Layer: "Hippopotamus-schicht"

Date: MP ?

Fauna: *Anas acuta*, *Coturnix coturnix*, *Alectoris* cf. *graeca*, *Tyto alba*, *Otus scops*, *Hirundo* sp., *Turdus* sp., *Sturnus vulgaris*, *Carduelis chloris*, *Coccothraustes coccothraustes*

Det.: Fischer & Stephan

Notes: *Scolopax ghardalamensis* reidentified as *Coturnix coturnix* by Olson (1976).

Layer: "Hirsch-schicht"

Date: LP

Fauna: *Coturnix coturnix*, *Turdus* sp., cf. *Amandava amandava*

Det.: Fischer & Stephan

Notes: *Scolopax ghardalamensis* reidentified as *Coturnix coturnix* by Olson (1976).

Layer: unstratified

Fauna: *Cygnus* sp., *Cygnus cygnus*, *Cygnus falconeri*, *Cygnus equitum*, *Anser* sp., *Branta bernicla*, *Branta leucopsis*, *Anas* sp., *Marmaronetta angustirostris*, *Hieraaetus fasciatus*, *Columba melitensis*, *Grus grus*, *Grus melitensis*, *Otis tarda*, *Tetrax aff tetrax*, *Strix melitensis*, *Turdus philomelos*?, *Corvus* cf. *corone*

Det.: Lambrecht; Bate; Lydekker?

Stored: British Museum (Natural History), National Museum of Natural History and in Malta

Notes: also known as Har Dalam; Lambrecht (1933) also mentions *Cygnus cygnus*; Lambrecht's record of *Gyps melitensis* from this site is erroneous according to Brodkorb (1964)

MA 5 "Malta"

Type: c

Source: Lambrecht 1933 (Bate 1916a, Despott 1927, 1929, Parker 1865)

Fauna: *Cygnus equitum*, *Cygnus falconeri*, *Cygnus* sp., *Anser fabalis*, *Tadorna ferruginea*, *Aythya ferina*, *Gyps* sp., *Gyps melitensis*, *Aquila chrysaetos*, *Corvus corax*, *Corvus* cf. *corone*

Notes: "cave deposits" (no Locality)

MA 6 Mnajdra Gap

Type: c

Sources: Northcote 1985, 1992; Vaufrey 1929; Wolf 1938–41

Fauna: *Cygnus cygnus*, *Cygnus falconeri*, *Cygnus equitum*, *Grus melitensis*, *Grus grus*

Stored: University Museum of Zoology, Cambridge, England

Notes: also known as Mnajdra

MA 7 Musta ravine

Type: c

Source: Lambrecht 1933

Fauna: *Branta leucopsis*

Notes: other remains from this site are Holocene and this may be true of *Branta leucopsis* as well.

MA 8 Tal Herba Fissure

Type: c

Sources: Lambrecht 1933; Northcote 1992

Fauna: *Cygnus equitum*, *Cygnus* sp., *Gyps melitensis*

Notes: also known as Tal Ghaqba

MA 9 Tal-Gnien

Type: c

Sources: Harrison 1979a; Northcote 1983, 1985, 1992

Date: LP ?

Fauna: *Cygnus cygnus*, *Cygnus falconeri*, *Cygnus equitum*, *Grus grus*, *Grus melitensis*

Stored: British Museum (Natural History)

MA 10 Zebbug Cave

Type: c

Sources: Lambrecht 1933; Lydekker 1890, 1891; Northcote 1985, 1992; Wolf 1938–41 (Parker 1865, 1869)

Fauna: *Cygnus cygnus*, *Cygnus falconeri*, *Cygnus* sp. ?, *Branta bernicla* ?, *Anas* sp. ?, *Gyps melitensis*, *Grus grus*, *Grus melitensis*

Stored: British Museum (Natural History)

Notes: also known as Jebbug

MOLDOVA**MO 1 Brynseny I**

Type: c

Sources: Burchak-Abramovich 1975; Ganya 1965 (Ganya & Ketraaru 1965)

Date: LP UP "Szeletian"

Fauna: *Anser anser*, *Anser fabalis*, *Anser* sp., *Anas platyrhynchos*, *Aythya nyroca*, *Falco peregrinus*, *Falco vespertinus*, *Falco tinnunculus*, *Aquila chrysaetos*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrax*, *Perdix perdix*, *Coturnix coturnix*, *Gallus* sp., *Tetrax tetrax*, *Asio flammeus*, *Galerida cristata*, *Melanocorypha calandra*, *Turdus viscivorus*, *Lanius collurio*, *Corvus monedula*, *Corvus corax*, *Garrulus glandarius*, *Coccothraustes coccothraustes*

Det.: Ganya

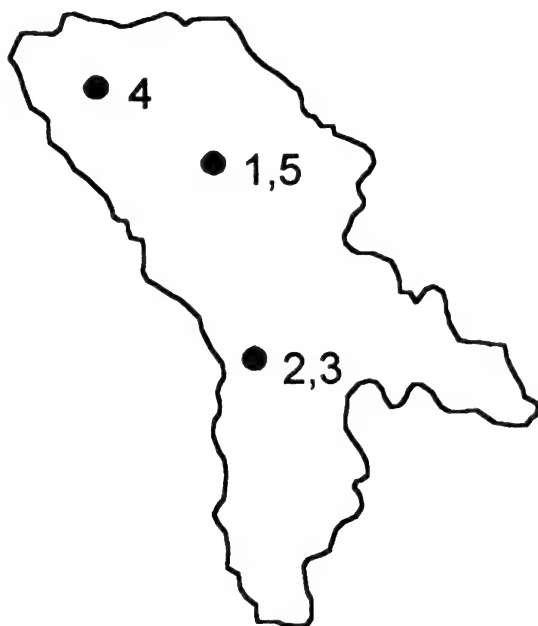
Notes: Ganya (1965) also mentions *Buteo lagopus*, *Otus scops*, *Pica pica***MO 2 Buteshty**

Type: c

Source: Baryshnikov & Potapova 1992

Date: LP

Fauna: *Lagopus lagopus*



MOLDOVA (MO)

MO 3 Staryje Duruitory

Type: c

Sources: Baryshnikov & Potapova 1988; Burchak-Abramovich 1975; Ganja 1965; Voinstvenskii 1967 (Ganya & Ketraru 1964)

Date: LP UP "Szeletian"

Fauna: *Anas acuta*, *Anas platyrhynchos*, *Aythya nyroca*, *Falco vespertinus*, *Falco tinnunculus*, *Aquila rapax*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Columba palumbus*, *Tetrax tetrax*, *Asio flammeus*, *Athene noctua*, *Strix aluco*, *Turdus viscivorus*, *Corvus monedula*, *Garrulus glandarius*

Det.: Ganja

Notes: Baryshnikov & Potapova (1988) also mention *Pica pica* from this site

MO 4 Trinki

Sources: Baryshnikov & Potapova 1988; Burchak-Abramovich 1975; Ganya 1965; Ganya & Burchak-Abramovich 1992; Potapova 1986; Voinstvenskii 1967 (Ganya 1972)

Date: LP UP ("Magdalenian")

Fauna: *Falco* sp., *Lagopus mutus*, *Tetrao tetrax*, *Perdix perdix*, *Gallus* sp., *Scolopax rusticola*, *Columba palumbus*, *Turdus merula*, *Corvus monedula*, *Corvus* sp.

Det.: Ganja, Voinstvenskij

Notes: also known as Trinkaj; *Lagopus mutus* according to Potapova (1986) and *Lagopus voinstvenskii* according to Ganya (1972) and Ganya & Burchak-Abramovich (1992); species lists differ between Ganja and Burchak-Abramovich; Baryshnikov & Potapova (1988) mention *Lagopus lagopus* rather than *Lagopus mutus* from this site

MO 5 Brynseny II

Type: c

Source: Burchak-Abramovich & Lakerbai, no date

Date: LP UP "Szeletian"

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Det: Ganya

MONTENEGRO

MN 1 Crvena Stijena

Alt.: 700

Type: c



MONTENEGRO (MN)

Sources: Grimm 1972; Malez 1973, 1988b; Malez & Malez-Bacic 1974c (Malez 1967)

Layer: IX

Date: LP "Würm III" UP

Fauna: *Cygnus cygnus*, *Falco tinnunculus*, *Perdix perdix*

Layer: X

Date: LP "Würm III" UP

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Pyrhocorax graculus*

Layer: XI

Date: LP "Würm III" MPal 14C=40,770±900 BP (Layer XII)

Fauna: *Perdix perdix*, *Columba livia*, *Corvus monedula*, *Corvus corax*

Det.: Malez; Malez-Bacic

MN 2 Malisina stijena

Type: c

Sources: Malez 1983a, 1988b; Malez, Malez & Paunovic 1988

Date: LP LG Bölling or later

Fauna: *Anas* sp., *Falco* sp., *Lagopus mutus*, *Lagopus lagopus*, *Alectoris graeca*, *Gallinago gallinago*, *Larus* sp., *Turdus merula*, *Pyrhocorax graculus*

MOROCCO

MR 1 Bou Knadel

Type: c

Source: Ennouchi 1952

Date: MP ?

Fauna: *Struthio* sp. ?

Det.: Ennouchi

MR 2 Jebel Irhoud

Type: c

Source: Thomas 1981

Date: MP-LP ca. 85–200 KA BP

Fauna: *Struthio* sp., *Coturnix coturnix*, cf. *Pica pica*.

Det.: Thomas

MR 3 Rabat

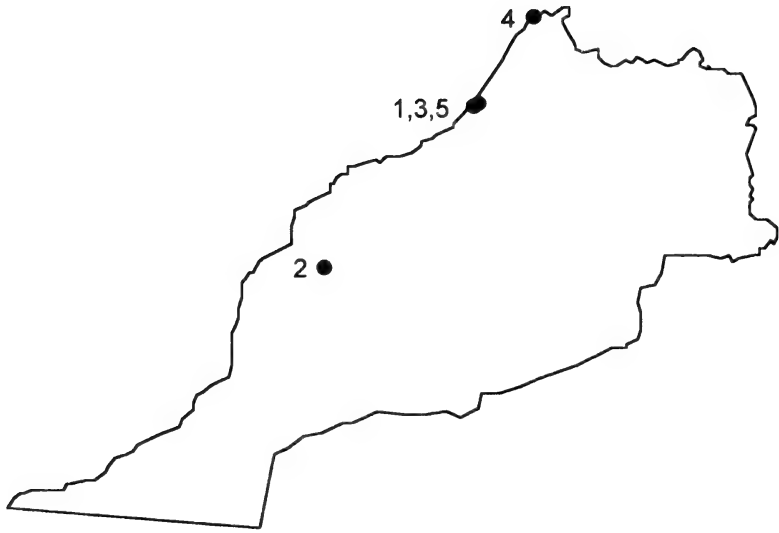
Type: c

Source: Ennouchi 1952

Date: LP ?

Fauna: *Struthio* sp.

Det.: Ennouchi



MOROCCO (MR)

MR 4 Ras Ashagar (Tanger)

Alt.: 10

Type: c

Sources: Coon 1957; Grimm 1972

Layer: Red 1

Date: LP

Fauna: *Numida* sp.

Det.: Wetmore

MR 5 Ain Rhor

Type: o

Source: Ennouchi 1952

Date: LP ?

Fauna: *Struthio* sp.

Det: Ennouchi

NETHERLANDS**NE 1 Bunde (Limburg)**

Type: c

Source: Erdbrink 1964

Date: LP LG

Fauna: *Circus* cf. *aeruginosus*, *Grus grus*, *Corvus frugilegus*



NETHERLANDS (NE)

NE 2 Maastricht-Belvédère (Limburg)

Type: o

Source: van Kolfschoten 1985

Layer: 5

Date: LP Early Weichselian

Fauna: *Nyctea scandiaca*

Det.: Weesie

NE 3 Tegelen (Limburg)

Type: o

Source: Junge 1953

Date: EP/LPI Tiglian

Fauna: *Haliaeetus albicilla*

Det.: Junge

NORWAY**NO 1 Blomvåg (Hordaland)**

Alt.: 12

Type: o

Sources: Lie 1986; Undås 1942

Layer: B

Date: LP LG Bölling 14C=12,200–12,700 BP

Fauna: *Fulmarus glacialis*, *Puffinus puffinus*, *Somateria mollissima*, *Somateria spectabilis*, *Melanitta nigra*, *Melanitta fusca*, *Clangula hyemalis*, *Larus argentatus*, *Larus marinus*, *Rissa tridactyla*, *Alca torda*, *Uria aalge*, *Uria lomvia*, *Cepphus grylle*, *Pinguinus impennis*, *Corvus corax*

Det.: Lie; Undås

NO 2 Skjonghelleren (Sunnmøre)

Alt.: 30

Type: c

Sources: Larsen 1984; Larsen et al. 1987

Layer: B

Date: LP LG Dryas 3 14C=10,360±170, 11,510±190 BP

Fauna: *Melanitta fusca*, *Somateria mollissima*, *Somateria spectabilis*, *Lagopus mutus*, *Uria* sp., *Alle alle*, *Fratercula arctica*, *Cepphus grylle*, *Larus marinus*

Layer: G

Date: LP Ålesund Interstadial U/Th/14C=27,900–32,800 BP

Fauna: *Fulmarus glacialis*, *Lagopus mutus*, *Somateria spectabilis*, *Stercorarius parasiticus*, *Larus canus*, *Rissa tridactyla*, *Pagophila eburnea*, *Calidris maritima*, *Alle alle*, *Uria aalge*, *Uria lomvia*, *Fratercula arctica*, *Cepphus grylle*

Det.: Lie



NORWAY (NO)

OUTER MONGOLIA**MG 1 Djadochta (Omnogov)**

Type: o

Source: Lambrecht 1933

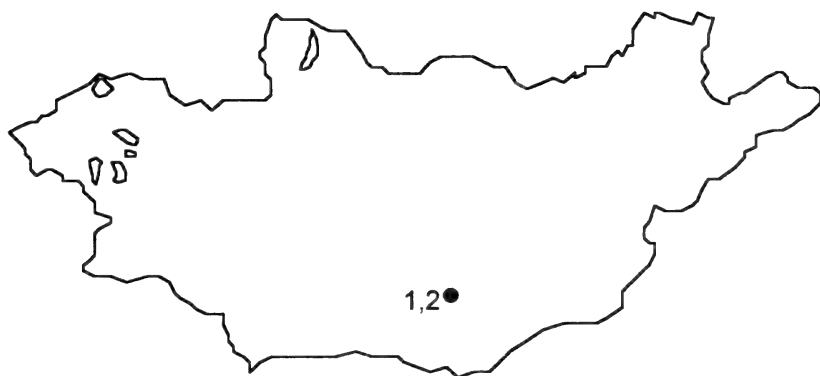
Fauna: *Struthio camelus***MG 2 Sharabakh Ussu (Omnogov)**

Type: o

Source: Lambrecht 1933

Fauna: *Struthio camelus*

Notes: also known as Bayn-Dzak



OUTER MONGOLIA (MG)

POLAND

PO 1 Belchatów (Piotrków Trybunalski)

Type: o

Sources: Bochenski 1991b, 1993a; Wiszniowska 1991

Date: MP, "Middle"MP, Ferdynandovian interstadial

Fauna: *Lagopus lagopus*

Notes: also known as Wola Grzymalina 59; Ferdynandovian interstadial; site is younger than Elster but older than Holstein

PO 2 Czajowice (Kraków)

Type: c

Sources: Bochenski 1993a; Römer 1883; Wolf 1938–41

Date: LP/Hol

Fauna: *Tetrao urogallus*

Note: also known as Jaskinia Krakowska, Krakowska cave; most likely holocene age (Bochenski 1993a)

PO 3 Dolne Male w Okopach (Kraków)

Type: c

Source: Bochenski 1993a (Czarnowski 1902, Kowalski 1951)

Date: LP/Hol

Fauna: *Anser* sp.**PO 4 Dziadowa Skala (Katowice)**

Type: c

Sources: Z. N. Bochenski 1990; Z. Bochenski 1993a

Layer: 3b

Date: LP Eem

Fauna: *Tetrao urogallus*

Layer: 3c

Date: LP Eem

Fauna: *Tetrao urogallus*, *Tetrao tetrix*

Layer: 4

Date: LP Eem

Fauna: *Tetrao urogallus*

Layer: 5

Date: LP Eem

Fauna: *Tetrao tetrix*

Layer: 7

Date: LP Early Upper Pleniglacial (pre 25,000 BP ?)

Fauna: *Anas* cf. *penelope*, *Falco tinnunculus*, *Lagopus lagopus*, *Tetrao urogallus*, *Bubo bubo*?, *Turdus merula*, *Coccothraustes coccothraustes*, *Corvus monedula*

Layer: 7/8

Date: LP Early Upper Pleniglacial-Late Glacial

Fauna: *Lagopus lagopus*

Layer: 8

Date: LP Upper Pleniglacial-Late Glacial (25,000–12,000 BP)

Fauna: *Anser* cf. *anser*, *Lagopus* sp., *Lagopus lagopus*, *Bonasa bonasia*, *Tetrao tetrix*, *Tetrao urogallus*, *Strix aluco*, *Corvus monedula*, *Turdus merula*

Det.: Z. N Bochinski

Stored: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków

Notes: also known as Jaskinia w Dziadowej Skale

PO 5 Dzierzgon (Christburg) (Elbląg)

Source: Fischer & Mauersberger 1989

Date: LP ?

Fauna: *Pinguinus impennis*

Stored: Museum für Naturkunde der Humboldt-Universität zu Berlin

Notes: also known as Dziezgon

PO 6 Jaskinia Ciasna (Kraków)

Type: c

Sources: Bochenski 1974, 1988, 1993a

Layer: 5b

Date: LP Weichsel Pleniglacial

Fauna: *Lagopus lagopus*

Det.: Bochenski

Stored: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków

Notes: also known as Doliny Saspowskiej

PO 7 Kadzielnia 1 (Kielce)

Type: c

Sources: Bochenski 1989, 1993a; Jánossy 1974b, 1977a

Date: LPI/EP "Upper Villafranchian", "MN17 to Early Biharian"

Fauna: *Tetrao praeurogallus*, *Francolinus* sp., *Glaucidium* cf. *passerinum*

Det.: Jánossy

Stored: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków

PO 8 Kalinów (Kraków)

Sources: Bochenski 1993a; Römer 1883

Date: LP/Hol

Fauna: *Corvus corone***PO 10 Kozi Grzbiet (Swietokrzyskie)**

Type: c

Sources: Bochenski 1984, 1989, 1993a

Date: MP "Mindel I/II interglacial", early MP MNQ 21

Fauna: *Tetrao* cf. *praeurogallus*, *Lagopus lagopus*, *Bonasa* cf. *praebonasia*, *Falco tinunculus atavus*, *Turdus* sp.

Det.: Bochenski

Stored: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków

PO 11 Koziarnia (Kraków)

Alt.: 363

Type: c

Sources: Bochenski 1974, 1993a; Madeyska 1981

Layer: 10

Date: LP Moershoofd interstadial (early IS 3)

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Lagopus* sp., *Tetrao tetrix*

Layer: 10–11

Date: LP Moershoofd/Lower Pleniglacial (IS 3/4)

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*

Layer: 11

Date: LP Lower Pleniglacial (IS 4)

Fauna: *Anas platyrhynchos*, *Falco columbarius*, *Lagopus lagopus*, *Lagopus mutus*, *Lagopus* sp., *Tetrao tetrix*, *Charadrius morinellus*, *Tringa totanus*, *Asio flammeus*, Alaudidae

Layer: 12

Date: LP Early Glacial/Lower Pleniglacial (IS 5/4)

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Lagopus* sp., *Tetrao tetrix*

Layer: 12–13

Date: LP Early Glacial (IS 5)

Fauna: *Lagopus lagopus*

Layer: 13

Date: LP Early Glacial (IS 5)

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Lagopus* sp., *Tetrao tetrix*, *Garrulus glandarius*

Layer: 17

Date: LP Pre-Brörup Stadial (IS 5 b/d)

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Lagopus* sp.

Layer: 18

Date: LP Early Glacial (IS 5) Levalloiso-Mousterian

Fauna: *Lagopus lagopus*

Layer: unstratified

Date: LP

Fauna: *Haliaeetus albicilla*, *Strix aluco*, *Turdus torquatus*

Det.: Bochenski

Stored: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków

PO 13 Mamutowa (Kraków)

Type: c

Sources: Bochenski 1974, 1981; Madeyska 1981; Musil 1980b; Römer 1883; Wolf 1938–41 (Hoyer 1937, Kowalski 1951, Krukowski 1939, Niezabitowski 1932, Zawisza 1876,78)

Layer: I

Date: LP Paudorf/Stillfried B (IS 3)

Fauna: *Lagopus lagopus*

Layer: III

Date: LP Paudorf/Stillfried B (IS 3)

Fauna: *Lagopus lagopus*, *Lagopus* sp., *Tetrao tetrix*, *Alauda arvensis*

Layer: IV

Date: LP Paudorf/Stillfried B (IS 3)

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Charadrius morinellus*

Notes: cold interval below Jerzmanowician

Layer: V

Date: LP Paudorf/Stillfried B (IS 3)

Fauna: *Lagopus lagopus*, *Lagopus* sp.

Notes: cold interval below Jerzmanowician

Layer: VI

Date: LP Paudorf/Stillfried B (IS 3) Jerzmanowician

Fauna: Anatidae, *Lagopus lagopus*, *Lagopus mutus*, *Lagopus* sp., *Tetrao tetrix*, *Tetrao urogallus*

Notes: fairly warm interval "latter part of Paudorf"

Layer: VII

Date: LP Beginning (?) Upper Pleniglacial (IS 2)

Fauna: *Lagopus lagopus*, *Tetrao tetrix*

Layer: VII/VIII

Date: LP Pleniglacial (IS 2)

Fauna: *Lagopus lagopus*

Notes: beginning Upper Pleniglacial above Jerzmanovician

Layer: VIII + 2

Date: LP Upper Pleniglacial (IS 2)

Fauna: *Lagopus lagopus*, *Corvus monedula*

Notes: Gravettian in layer 2

Layer: IX

Date: LP Pleniglacial (IS 2)

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Lagopus* sp., *Tetrao tetrax*, *Pluvialis squatarola*, *Melanocorypha calandria*

Layer: 2

Date: LP Upper Pleniglacial Gravettian probably ca. 21–23,000 BP

Fauna: *Anas* cf. *acula*, *Anas* cf. *crecca*, *Aythya fuligula*, *Falco* sp., *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrax*, *Coturnix coturnix*, *Rallus aquaticus*, *Porzana porzana*, *Crex crex*, *Pluvialis apricaria*, *Vanellus vanellus*/*Pluvialis squatarola*, *Tringa totanus*, *Gallinago media*, *Gallinago media*/*Tringa ochropus*, *Numenius phaeopus*, *Numenius* cf. *arquata*, *Aegolius funereus*, *Strix aluco*, *Asio otus*, *Asio flammeus*, *Eremophila alpestris*, *Galerida cristata*, *Lullula arborea*, *Corvus monedula*, cf. *Tichodroma muraria*, *Coccothraustes coccothraustes*

Layer: 2 upper

Date: LP beginning Upper Pleniglacial (IS 2), Gravettian

Fauna: *Anas platyrhynchos*, *Aythya marila*, *Accipiter gentilis*, *Falco* cf. *tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrax*, *Crex crex*, *Porzana porzana*, *Numenius phaeopus*, *Asio flammeus*, *Corvus corax*, *Corvus monedula*, *Pica pica*, *Pyrrhocorax graculus*, *Turdus viscivorus*

Notes: Madeyska dates to Upper Pleniglacial; Gravettian prob ca. 21–23,000 BP; warmer and damper climate.

Layer: 2 lower

Date: LP beginning Upper Pleniglacial, Gravettian

Fauna: *Anas* cf. *clypeata*, *Melanitta nigra*, *Falco* cf. *tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrax*, *Tetrao urogallus*, *Rallus aquaticus*, *Pluvialis apricaria*, *Scolopax rusticola*, *Numenius phaeopus*, *Asio flammeus*, *Corvus monedula*, *Pica pica*

Notes: Madeyska dates to Upper Pleniglacial; Gravettian probably ca. 21–23,000 BP

Layer: 3

Date: LP Pleniglacial (IS 2)

Fauna: *Anas* cf. *crecca*, *Lagopus lagopus*, *Lagopus mutus*, *Lagopus* sp., *Tetrao tetrax*, *Tetrao urogallus*, *Rallus aquaticus*, *Corvus monedula*

Notes: perhaps later part of Paudorf (approx = VI)

Layer: unstratified

Date: LP Pleniglacial/Paudorf

Fauna: *Strix aluco*, *Turdus torquatus/pilaris*

Det: Bochenski

Stored: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków

Layer: ?

Date: LP Mousterian or younger

Fauna: *Anser* sp., *Lagopus lagopus*, *Tetrao urogallus*

Det.: Fraas ?

Notes: older excavations; also known as Wierzchowska Dolna

PO 14 Maszycka (Kraków)

Type: c

Sources: Bochenski 1993a; Römer 1883; Wolf 1938–41 (Kowalski 1951)

Layer: c

Date: LP LG Magdalenian 14C = $14,250 \pm 240$ – $15,490 \pm 310$ BP

Fauna: *Anser anser* ?, *Lagopus lagopus*, *Lagopus* sp. ?, *Gallus* sp. ?

PO 15 Nad Mosurem Starym Duza (Kraków)

Type: c

Sources: Bochenski 1993a; Nadachowski et al. 1989

Layer: 5

Date: LP “Würm Pleniglacial”

Fauna: *Mergus merganser*, *Tetrao tetrix*, *Crex crex*, *Upupa epops*, *Motacilla alba*

Det: Tomek

Stored: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków

PO 16 Niedostepna rockshelter (Kraków)

Type: c

Sources: Bochenski 1974, 1993; Madeyska 1981

Layer: 2

Date: LP Lower Pleniglacial (IS 4) or Mid-Weichselian (IS 3)

Fauna: *Lagopus lagopus*

Layer: 4

Date: LP LG Epipaleolithic

Fauna: *Alauda arvensis*, *Hirundo rustica*, *Sitta* cf. *carolinensis*, *Turdus torquatus*

Layer: 4/5

Date: LP Upper Pleniglacial/Holocene (IS 2/1)

Fauna: *Botaurus stellaris*, *Buteo buteo*, *Scolopax rusticola*

Det.: Bochenski

Stored: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków

Notes: also known as Schronisko nad Jaskinia Niedostepna (=Rockshelter above Niedostepna cave)

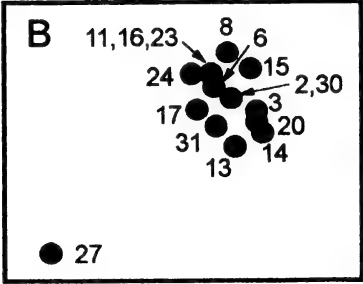
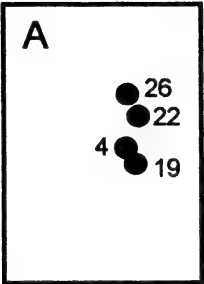
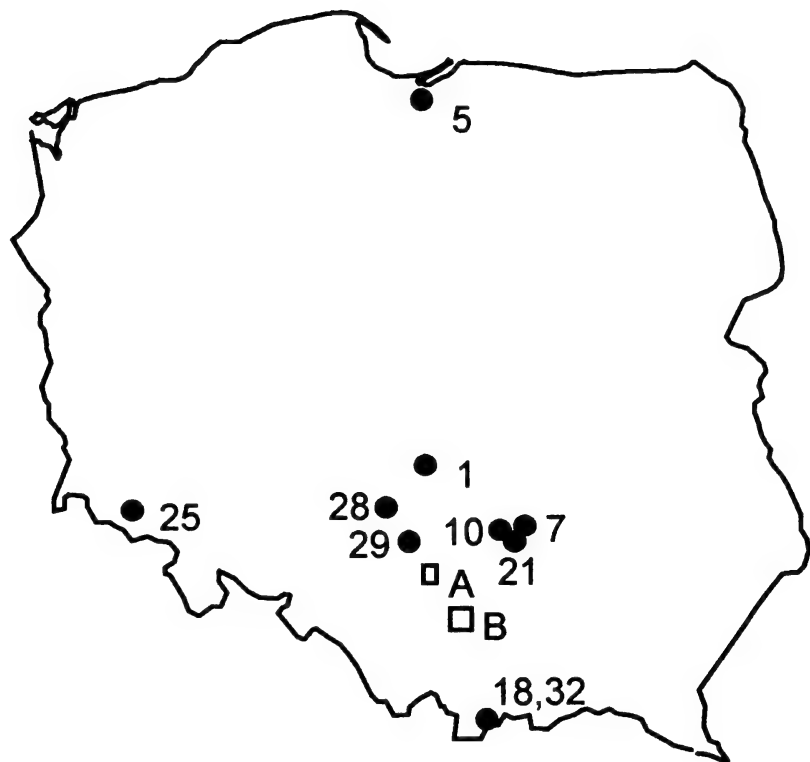
PO 17 Nietoperzowa (Kraków)

Alt.: 450

Type: c

Sources: Bochenski 1974, 1993; Madeyska 1981; Musil 1980b; Römer 1883; Wolf 1938–41

Layer: 4



POLAND (PO)

Date: LP End Paudorf (IS 3) Upper Jerzmanowician

Fauna: *Tetrao tetrrix*

Layer: 5

Date: LP Paudorf/Stillfried B (IS 3) Jerzmanowician

Fauna: *Tetrao tetrrix*

Notes: sterile layer between Upper and Lower Jerzmanowician.

Layer: 6

Date: LP Paudorf/Stillfried B (IS 3) 14C=38,500±1240 Jerzmanowician

Fauna: *Lagopus lagopus*

Notes: Lower Jerzmanowician layer.

Layer: 7/8

Date: LP Paudorf/Moershoofd (IS 3) "Hengelo"(?).

Fauna: *Lagopus lagopus*, *Lagopus* sp.

Layer: 8

Date: LP Mid-Weichselian "Hengelo (?)"

Fauna: *Lagopus lagopus*, *Tetrao tetrrix*

Layer: 8

Date: LP Moershoofd (IS 3)

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrrix*

Layer: 8/9

Date: LP Moershoofd/Lower Pleniglacial (IS 3/4)

Fauna: *Lagopus* sp.

Layer: 9

Date: LP Mousterian of Acheulean tradition (IS 4)

Fauna: *Lagopus mutus*, *Tetrao tetrrix*

Layer: 9

Date: LP Lower Pleniglacial (IS 4) MAT

Fauna: *Falco columbarius*, *Lagopus lagopus*, *Lagopus* sp.

Layer: 9/10 Date: LP Lower Pleniglacial/Brörup (IS 4/5a)

Fauna: *Tetrao tetrrix*

Layer: 10 Date: LP Brörup (IS 5a/b) Micoquo-Pradnikian/Levall.-Mousterian

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrrix*

Layer: 10 Date: LP Early Würm (IS 5a+5b) Middle Paleolithic

Fauna: *Falco columbarius*

Notes: 10 upper = Brörup (?) 10 lower = IS 5b

Layer: 11 Date: LP Early Würm (IS 5c+5d) Middle Paleolithic

Fauna: *Tetrao tetrrix*

Layer: 13 Date: LP Eem (IS 5e) Levallois-Mousterian (Middle Paleolithic + MAT)

Fauna: cf. *Aegithalos caudatus*, *Regulus* cf. *regulus*

Det.: Bochenski Stored: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków

Layer: unstratified

Date: LP/Hol

Fauna: *Tetrao urogallus*, *Perdix perdix*, *Hirundo* sp., *Garrulus glandarius*, *Carduelis* cf. *carduelis*, *Carduelis cannabina*, *Emberiza* sp.

Det.: Liebe

Notes: also known as Jerzmanowice, Jerzmanowska; conflicting data on some layers in Bochenski (1974, 1981) and Musil (1980b)

PO 18 Oblazowa 2 (Nowy Sacz)

Type: c

Sources: Bochenski 1993a; Nadachowski et al. 1993; Tomek & Bochenski 1995

Date: LP Mid-Weichselian 14C=33,430±1,230 BP

Fauna: *Branta* cf. *leucopsis*, *Anas crecca*, *Anas* cf. *platyrhynchos*, *Clangula hyemalis*, *Mergus merganser*, *Accipiter/Buteo* sp., *Falco tinnunculus*, *Falco* sp., *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Coturnix coturnix*, *Grus grus*, *Otis tarda*, *Tetrax tetrax*, *Crex crex*, *Porzana porzana*, *Fulica atra*, *Gallinula chloropus*, *Gallinago gallinago*, *Gallinago media*, *Limosa limosa*, *Pluvialis* cf. *apricaria*, *Pluvialis* cf. *squatarola*, *Columba palumbus*, *Asio flammeus*, *Alauda arvensis*, *Lullula arborea*, *Hirundo rustica*, *Anthus trivialis*, *Lanius excubitor*, *Turdus iliacus*, *Turdus* cf. *philomelos*, *Turdus* sp., *Carduelis chloris*, *Fringilla coelebs*

Det: Tomek

Stored: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków

PO 19 Okiennik (Katowice)

Alt.: 380

Type: c

Sources: Bochenski 1993a; Musil 1980b (Kowalski 1951, Krukowski 1939)

Layer: 2–3

Date: LP/Hol

Fauna: *Lagopus lagopus*, *Tetrao tetrix*

PO 20 Puchacza Skala (Kraków)

Type: c

Sources: Bochenski 1974, 1993a

Layer: “200–210”

Date: LP Lower Pleniglacial (IS 4)

Fauna: *Lagopus* cf. *mutus*, *Lagopus* sp., cf. *Tichodroma muraria*

Layer: “250–260”

Date: LP Lower Pleniglacial (IS 4)

Fauna: *Lagopus* cf. *mutus*

Layer: “350–360”

Date: LP Lower Pleniglacial (IS 4)

Fauna: *Gallinago media*/*Tringa ochropus*

Det.: Bochenski

Stored: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków

Notes: also known as Jaskinia Puchacza, Schronisko w Puchaczkiej Skale; "layers" are actually depths within "loess formation III"

PO 21 Raj (Swietokrzyskie)

Type: c

Sources: Bochenski 1974, 1993a

Layer: 2

Date: LP Brörup (IS 5a/c)

Fauna: *Lagopus lagopus*, *Lagopus* sp., *Tetrao tetrix*, *Tringa* cf. *erythropus*, *Alauda arvensis*, *Hirundo rustica*, *Emberiza* cf. *schoenichus*

Layer: 3

Date: LP Brörup (IS 5a/c)

Fauna: *Lagopus lagopus*, *Hirundo rustica*

Notes: top of this layer probably an interstadial ("argile rouge-brun")

Layer: 4

Date: LP Brörup/Lower Pleniglacial (IS 5/4) Eastern Charentian

Fauna: *Lagopus lagopus*, *Lagopus mutus*?, *Lagopus* sp., *Tetrao tetrix*, *Pluvialis squatarola*, cf. *Tringa* sp., *Surnia ulula*, *Alauda arvensis*, *Hirundo rustica*, *Turdus philomelos*, cf. *Carduelis chloris*

Layer: 5

Date: LP Brörup/Lower Pleniglacial (IS 5/4)

Fauna: *Lagopus lagopus*

Layer: 6

Date: LP Brörup/Lower Pleniglacial (IS 5/4) Eastern Charentian

Fauna: *Anas platyrhynchos*, *Lagopus lagopus*, *Lagopus mutus*, *Tringa totanus*, *Numenius phaeopus*, *Nyctea scandiaca*, *Eremophila alpestris*, *Hirundo rustica*, *Sturnus vulgaris*

Layer: 6/10

Date: LP Brörup/Lower Pleniglacial (IS 5/4)

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Vanellus vanellus*/*Pluvialis squatarola*, *Tringa* cf. *erythropus*

Layer: 8

Date: LP Lower Pleniglacial (IS 4)

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tringa totanus*, *Hirundo rustica*

Layer: 9

Date: LP Lower Pleniglacial (IS 4)

Fauna: *Lagopus lagopus*, *Lagopus* sp., *Gallinago media*

Layer: 8/10

Date: LP Lower Pleniglacial (IS 4)

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Hirundo rustica*

Layer: 10

Date: LP Lower Pleniglacial (IS 4)

Fauna: *Falco columbarius*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao urogallus*, *Pluvialis* sp., *Vanellus vanellus*/*Pluvialis squatarola*, *Calidris ferruginea*, *Nyctea scandiaca*, cf. *Bubo bubo*, *Strix uralensis*, cf. *Melanocorypha calandra*, *Lullula arborea*, *Corvus corax*

Layer: 10/11

Date: LP Lower Pleniglacial/Holocene (IS 4/1)

Fauna: *Tetrao tetrix*, *Strix aluco*

Det.: Bochenski

Stored: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków

PO 22 Ruska Skala (Czestochowa)

Type: c

Source: Bochenski 1993a (Krysiak 1956)

Date: LP Late Glacial ?

Fauna: *Tetrao urogallus*, *Perdix perdix*

Notes: also known as Schronisko w Ruskiej Skale

PO 23 Sadlana (Kraków)

Type: c

Sources: Bochenski 1993a; Römer 1883; Wolf 1938–41

Date: LP/Hol

Fauna: *Tetrao urogallus*, *Perdix perdix*, *Gallus gallus*, *Anser* sp.

Det.: Liebe

PO 24 Saspowska Zachodnia (Kraków)

Type: c

Sources: Bochenski 1988, 1993a; Madeyska 1981

Layer: 4

Date: LP LG Epipaleolithic

Fauna: *Hirundo rustica*

Layer: 3

Date: LP LG

Fauna: *Aythya fuligula*, *Buteo buteo*, *Falco columbarius*, *Falco* cf. *peregrinus*, *Lagopus lagopus*, *Tetrao tetrix*, *Tetrao urogallus*, *Crex crex*, cf. *Tringa* sp., *Asio otus*, *Asio flammeus*, *Strix uralensis*, *Aegolius funereus*, *Dryocopus martius*, *Turdus* cf. *torquatus*, *Turdus merula*, *Turdus philomelos*, *Hirundo rustica*, cf. *Garrulus glandarius*, *Pyrrhula pyrrhula*

Det.: Bochenski

Stored: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków

PO 25 Wojcieszów (Kauffung) (Wrocław)

Source: Fischer & Mauersberger 1989

Date: LP

Fauna: *Lagopus lagopus*

Stored: Museum für Naturkunde der Humboldt-Universität zu Berlin

PO 26 Zabia Cave (Czestochowa)

Alt.: 406

Type: c

Sources: Bosak et al. 1982; Bochenski 1993a

Date: EP Lower Biharian Betfian/Villanyian

Fauna: *Tetrao tetrix*, *Tetrao urogallus*

Det.: Svec

Notes: also known as Jaskinia Zabia; identifications and/or dating probably faulty; the Black Grouse from this site is different from the living form and may belong to *Tetrao partium* (Mlíkovský in press)

PO 27 Zalas (Kraków)

Type: c

Sources: Bochenski 1985, 1993a

Layer: 7

Date: LP LG Magdalenian, Dryas 1 or 2

Fauna: *Anser erythropus*, *Falco* sp., *Lagopus lagopus*, *Lagopus* cf. *mutus*, *Asio* cf. *otus*

Layer: 7 bottom

Date: LP LG Magdalenian, Dryas 1 or 2

Fauna: *Falco* cf. *tinnunculus*, *Lagopus lagopus*, *Lagopus* cf. *mutus*

Layer: 9

Date: LP LG Magdalenian Dryas 1 or 2

Fauna: *Falco* cf. *tinnunculus*, *Lagopus lagopus*, *Lagopus* sp., *Charadrius hiaticula*, *Erismophila alpestris*

Det.: Bochenski

Stored: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków

Notes: Schronisko w Zalasie

PO 28 Zalesiaki 1A (Sieradz)

Sources: Bochenski 1991b, 1993a

Date: EP, Late EP MNQ 20

Fauna: *Tetrao praeurogallus*

Det.: Bochenski

Stored: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków

PO 29 Zamkowa Dolna (Czestochowa)

Type: c

Sources: Bochenski 1974, 1993a

Layer: 6

Date: LP IS 2–4 (loess, undifferentiated)

Fauna: *Aythya* cf. *ferina*, *Falco columbarius*, *Lagopus lagopus*, *Lagopus* sp., *Tetrao tetrix*, *Tetrao urogallus*, *Rallus aquaticus*, *Apus melba*, *Garrulus glandarius*, *Turdus viscivorus*

Det.: Bochenski

Stored: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków

PO 30 Zbojecka (Kraków)

Type: c

Sources: Bochenski 1993a; Römer 1883; Wolf 1938–41

Date: LP/Hol

Fauna: *Tetrao urogallus*

Det.: Liebe

PO 31 Zytunia Skala (Kraków)

Type: c

Sources: Bochenski 1974, 1993; Madeyska 1981

Layer: “less z gruzem w stropie”=layer d.

Date: LP LG

Fauna: *Anas penelope*, *Anas/Aythya* sp., *Lagopus lagopus*, *Lagopus* sp. *Tetrao tetrix*, *Tetrao urogallus*

Layer: “less smugowany”=layer c

Date: LP Upper Pleniglacial (IS 2)

Fauna: *Lagopus* sp., cf. *Turdus* sp.

Layer: “poziom lessowy-gruzowy (spag)”=layer b

Date: LP Stadial between Paudorf & Moershoofd (IS 3)

Fauna: *Lagopus lagopus*

Layer: “I poziom lessu”=layer 6

Date: LP LG

Fauna: *Lagopus* sp.

Layer: “II poziom lessu”=layer 5

Date: LP Upper Pleniglacial (IS 2)

Fauna: *Lagopus lagopus*, cf. *Turdus* sp.,

Layer: “gorny poziom solikflukcji”=layer 4

Date: LP Paudorf/Stillfried B (IS 3)

Fauna: *Glaucidium passerinum*

Layer: “dolny poziom solikflukcji”=layer 2

Date: LP Moershoofd (IS 3)

Fauna: *Lagopus lagopus*

Det.: Bochenski

Stored: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków

Notes: also known as Schronisko w Zytnej Skale

PO 32 Oblazowa 1 (Nowy Sacz)

Type: c

Sources: Tomek 1995; Tomek & Bochenski 1995

Layer: V-XVI

Date: LP Weichsel, Upper Pleniglacial, 14C=25,900±1,700 BP (layer XIV)

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Mergus merganser*, *Falco tinnunculus*, *Falco* sp., *Lagopus lagopus*, *Lagopus mutus*, *Tetrao urogallus*, *Perdix perdix*, *Crex crex*, *Pluvialis squatarola*, *Gallinago gallinago*, *Gallinago media*, *Scolopax rusticola*, *Stercorarius* cf. *parasiticus*, *Larus canus*, *Lullula arborea*, *Alauda arvensis*, *Turdus* cf. *pilaris*, *Turdus iliacus*, *Parus cristatus*, *Parus major*, *Pica pica*, *Nucifraga caryocatactes*, *Corvus monedula*, *Corvus corax*, *Sturnus vulgaris*, *Montifringilla nivalis*, *Miliaria* cf. *calandra*

Layer: II-IV

Date: LP LG

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Melanitta nigra*, *Mergus merganser*, *Falco tinnunculus*, *Falco peregrinus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Gallus gallus*, *Crex crex*, *Pluvialis squatarola*, *Philomachus pugnax*, *Gallinago gallinago*, *Gallinago media*, *Numenius phaeopus*, *Tringa erythropus*, *Tringa totanus*, *Alle alle*, *Columbus palumbus*, *Glaucidium passerinum*, *Strix aluco*, *Asio flammeus*, *Apus apus*, *Jynx torquilla*, *Dendrocopos major*, *Lullula arborea*, *Alauda arvensis*, *Eremophila alpestris*, *Anthus trivialis*, *Bombycilla garrulus*, *Troglodytes troglodytes*, *Turdus* cf. *merula*, *Turdus* cf. *philomelos*, *Turdus viscivorus*, *Parus cristatus*, *Sitta europaea*, *Nucifraga caryocatactes*, *Corvus monedula*, *Montifringilla nivalis*, *Emberiza citrinella*, *Miliaria* cf. *calandra*

Det: Z. M. Bochenski and Tomek

Stored: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków

PORTUGAL

PG 1 Grotte das Fontainhas (Lissabon)

Type: c

Sources: Lambrecht 1933; Villalta 1964; Wolf 1938–41 (Harlé 1911)

Fauna: *Alectoris rufa*, *Vanellus vanellus*, *Corvus monedula*?, *Pyrhcorax pyrhcorax*

Det.: Newton

Notes: possibly *Pyrhcorax graculus* instead ?

PG 2 Grotte de Furninha (Leiria)

Type: c

Sources: Lambrecht 1933; Roche 1972; Villalta 1964; Wolf 1938–41 (Harlé 1909, 1911)

Date: LP ?

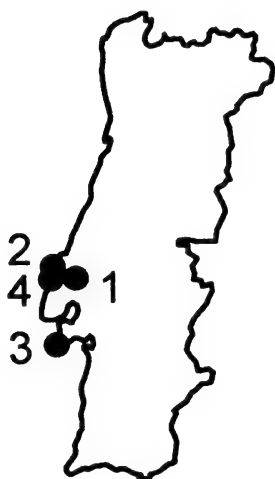
Fauna: *Calonectris diomedea*, *Phalacrocorax aristotelis*, *Cygnus olor*, *Tadorna tadorna*, *Anas crecca*, *Melanitta nigra*, *Alectoris rufa*, *Perdix* sp., *Columba livia*, *Asio flammeus*, *Bubo bubo*, *Turdus philomelos*, *Turdus pilaris*, *Turdus iliacus*?, *Corvus monedula*, *Corvus* cf. *corone*, *Pica pica*?, *Pyrhcorax pyrhcorax*

Det.: Newton

PG 3 Gruta da Figueira Brava (Setúbal)

Alt.: 5

Type: c



PORTUGAL (PG)

Source: Mourer-Chauviré & Antunes 1991

Date: LP Mousterian 14C=30,930±700 BP

Fauna: *Gavia stellata*, *Puffinus holeae*, *Sula bassana*, *Melanitta nigra*, *Melanitta fusca*,
Clangula hyemalis, *Alca torda*, *Pinguinus impennis*

Det.: Mourer-Chauviré

PG 4 Lapa da Rainha (Leiria)

Type: c

Source: Roche 1971

Date: LP UP (Aurignacian ?)

Fauna: *Pyrhocorax pyrrhocorax*, *Corvus monedula*, *Athene noctua*, *Pica pica*

PG 5 Porto Santo

Type: o

Source: Pieper 1985

Date: LP-Hol

Fauna: *Buteo buteo*, *Coturnix nov spp.*, *Columba trocaz*, *Pinguinus impennis*

Det.: Pieper

PG 6 Sao Lourenco peninsula (Madeira)

Type: o

Source: Pieper 1985

Date: LP-Hol

Fauna: Procellariidae spp., Hydrobatidae spp., Rallidae nov. spp., *Columba trocaz*, *Coturnix* nov. spp., *Falco tinnunculus*, *Tyto alba*, aff *Otus scops*, *Turdus* nov. sp., *Fringilla coelebs maderensis*, *Coccothraustes coccothraustes*, aff *Carduelis* nov. sp.

Det.: Pieper

Notes: According to Jaume et al. (1993) a small *Tyto* is also present.

ROMANIA

RM 1 Adapostul cu ciulini (Constanta)

Type: c

Sources: Jurcsák & Kessler 1986, 1988; Kessler 1985

Date: LP LG "tardiglacial"

Fauna: *Galerida cristata*, *Motacilla alba*, *Turdus philomelos*

Det.: Kessler

RM 2 Betfia (Bihor)

Type: c

Sources: Jánosy 1972a, 1976c, 1977a, 1978, 1979, 1980, 1985; Jurcsák & Kessler 1973, 1986; Kessler 1975, 1977b, 1978a, 1985; Kretzoi 1961a; Wolf 1938–41 (Capek 1917)

Layer: Locality 1

Date: EP

Fauna: *Tetrao partium*

Det.: Jánosy

Layer: Locality 2

Date: EP MNQ 19

Fauna: *Pelargosteon tothi*, *Anas* aff *acuta*, *Anas* aff *clypeata*, *Anas* aff *querquedula*, *Anas* cf. *crecca*, *Anas* cf. *strepera*, *Aythya* cf. *nyroca*, *Falco tinnunculus atavus*, *Tetrao partium*, *Francolinus capeki*, *Perdix perdix jurcsáki*, *Otis kalmanni*, *Crex* cf. *crex*, *Gallinago* cf. *media*, *Limosa* aff *limosa*, *Bubo* aff *bubo*, *Asio* aff *flammeus*, *Glaucidium* cf. *passerinum*, *Caprimulgus capeki*, *Dendrocopos* cf. *media*, *Jynx* cf. *torquilla*, *Alauda* cf. *arvensis*, *Hirundo* sp., *Motacilla alba*, *Saxicola* cf. *torquata*, *Turdus* cf. *viscivorus*, *Turdus* cf. *merula*, *Turdus* cf. *philomelos*, *Acrocephalus* cf. *palustris*, *Sylvia* cf. *communis*, *Hippolais* sp., *Parus* cf. *lugubris*, *Parus* cf. *major*, *Aegithalos* cf. *caudatus*, *Certhia* cf. *familiaris*, *Pyrrhocorax* aff *graculus*, *Corvus* aff *monedula*, *Garrulus* aff *glandarius*, *Lanius* cf. *minor*, *Sturnus* cf. *vulgaris*, *Coccothraustes* cf. *coccothraustes*, *Fringilla* cf. *coelebs*, *Passer* cf. *montanus*

Det.: Capek; Lambrecht; Jánosy

Stored: Geological Institute, Budapest (in part)

Layer: Locality 3 ("punct. fos. III")

Date: EP

Fauna: *Anas clypeata*, *Tetrao* cf. *tetrix*, *Perdix perdix*, *Otis tarda/lambrechtii*, *Corvus* cf. *monedula*

Det.: Kessler

Layer: Locality 3 ?

Date: EP

Fauna: *Otis lambrechtii*

Det.: Jánosy

Layer: Locality 5

Date: EP "Middle Cromerian-Biharian" MNQ 20

Fauna: *Pelargosteon tothi*, *Mergus connectens*, *Falco tinnunculus*, *Falco* cf. *subbuteo*, *Tetrao urogallus*?, *Tetrao partium*, *Perdix perdix jurcsáki*, *Otis lambrechtii*, *Sterna* sp., cf. *Asio flammeus*, *Turdicus tenuis*, *Corvus betfianus*, *Pyrrhocorax graculus vetus*.

Det.: Kretzoi; Jánosy

Stored: Museum Regional Oradea (in part)

Layer: Locality 5 ("punct. fos. V")

Date: EP "Middle Cromerian-Biharian" MNQ 20

Fauna: *Tadorna* cf. *tadorna*, *Aquila* aff. *pomarina*, *Tetrao urogallus*, *Perdix perdix*, *Perdix perdix jurcsáki*, *Otis tarda/lambrechtii*, *Tringa* sp., *Galerida cristata*, *Corvus corax*, *Corvus corone/betfianus*

Det.: Kessler

Stored: Museum Regional Oradea (in part)

Layer: Locality 7 ("punct. fos. VII")

Date: EPMP MNQ 19–21

Fauna: *Anas strepera*, *Aythya nyroca*, *Perdix perdix*, *Tringa glareola/ochropus*, *Anthus* aff. *trivialis*?, *Acrocephalus* cf. *arundinaceus*, *Turdus merula*, *Lanius* cf. *collurio*

Det.: Kessler

Notes: upper layers at this Locality are the youngest deposit in Betfia but the Locality has a very large stratigraphic range.

Layer: Locality 13 (punct. fos. XIII)

Date: EP "Villafranchien superior" MN 18

Fauna: *Anas* cf. *crecca*, *Anas querquedula*, *Tetrao* cf. *tetrix*, *Francolinus capeki*, *Tringa* aff. *totanus*, *Turdus merula*, *Acrocephalus* cf. *arundinaceus*

Det.: Kessler

Layer: "breccia cu microfauna"

Date: EP

Fauna: *Falco subbuteo*, *Asio* cf. *otus*, *Anthus* aff. *trivialis*, *Garrulus glandarius*, *Turdus merula*

Det.: Kessler

Layer: "Aven"

Date: EP "Middle Cromerian-Biharian"

Fauna: *Anas querquedula*, *Anas strepera*, *Anas* cf. *penelope*, *Anas clypeata*, *Aythya nyroca*, *Falco subbuteo*, *Falco* cf. *vespertinus*, *Francolinus capeki*, *Tringa glareola*, *Dendrocopos major*, *Corvus frugilegus*, *Corvus* cf. *monedula*, *Garrulus glandarius*, *Pyrrhocorax graculus*

Det.: Kessler

Layer: ?

Date: EP

Fauna: *Pelargosteon tothi*, *Anas submajor*, *Anas* cf. *querquedula*, *Anas* cf. *crecca*, *Anas* cf. *clypeata*, *Anas strepera*, *Mergus connectens*, *Aythya* cf. *nyroca*, *Tadorna* cf. *tadorna*, *Aquila* aff. *pomarina*, *Circus* sp., *Falco* cf. *peregrinus*, *Falco* aff. *cherrug*, *Falco*

aff *subbuteo*, *Falco* cf. *vespertinus*, *Falco tinnunculus atavus*, *Tetrao praeurogallus*, *Tetrao partium*, *Francolinus capeki*, *Perdix perdix jurcsáki*, *Otis lambrechtii*, *Otis kalmani*, *Crex* cf. *crex limosa* aff *limosa*, *Tringa* aff *erythropus*, *Tringa glareola ochropus*, *Tringa* aff *totanus*, *Actitis* aff *hypoleucos*, *Gallinago* cf. *media*, *Vanellus* cf. *vanellus*, *Glaucidium* sp., *Asio* cf. *flammeus*, *Asio* aff *otus*, *Otus* sp., *Caprimulgus capeki*, *Dendrocopos submajor*, *Dendrocopos* cf. *medius*, *Jynx* cf. *torquilla*, *Alauda* cf. *arvensis*, *Galerida* cf. *cristata*, *Hirundo* cf. *rustica*, *Delichon* cf. *urbica*, *Motacilla* cf. *alba*, *Anthus* aff *trivialis*, *Saxicola* cf. *torquata*, *Turdus* aff *viscivorus*, *Turdus* cf. *philomelos*, *Turdus* cf. *merula*, *Turdus* cf. *iliacus*, *Turdicus tenuis*, *Acrocephalus* aff *arundinaceus*, *Acrocephalus* cf. *palustris*, *Sylvia* cf. *communis*, *Parus* cf. *major*, *Parus* aff *lugubris*, *Aegithalos* cf. *caudatus*, *Certhia* cf. *familiaris*, *Lanius* aff *collurio*, *Lanius* cf. *minor*, *Sturnus* cf. *vulgaris*, *Corvus* cf. *corone*, *Corvus betfianus*, *Corvus* aff *monedula*, *Pyrhocorax graculus vetus*, *Garrulus* aff *glandarius*, *Coccothraustes* cf. *coccothraustes*, *Carduelis* sp., *Fringilla* cf. *coelebs*, *Passer* cf. *montanus*

Det.: Capek; Kretzoi; Jánossy; Kessler

Notes: also known as Püspökfördő, Episcopia & Somlyóhegy

RM 3 Cheile Virghisului (Covasna)

Type: c

Sources: Jurcsák & Kessler 1986, 1988; Mottl 1941

Date: LP-Hol

Fauna: *Podiceps grisegena*, *Bonasa bonasia*, *Tetrao tetrix*, *Lagopus lagopus*, *Perdix perdix*, *Gallus gallus*, *Turdus merula*, *Turdus pilaris*, *Corvus monedula*

Det.: Kessler

Date: LP "Würm propriu"

Fauna: *Lagopus mutus*

Det.: Mottl

RM 4 Cuina Turcului (Caras-Severin)

Alt.: 60

Type: c

Sources: Fischer & Stephan 1977; Jurcsák & Kessler 1986; Kessler 1974b, 1985; Terzea 1986

Layer: II

Date: LP LG Romanello-Azilian (Clisorean) 14C = 10150 ± 150 Dryas 3/PB

Fauna: *Podiceps grisegena*, *Pelecanus* cf. *onocrotalus*, *Mergus merganser*, *Mergus serra-*
tor, *Gypaetus barbatus*, *Tetrao tetrix*, *Alectoris graeca*, *Bubo bubo*, *Sturnus vulgaris*,
Pica pica, *Pyrhocorax graculus*, *Corvus monedula*, Fringillidae sp.

Notes: Layer II = Upper layer; Fischer & Stephan gives *Gyps fulvus* instead of *Gypaetus barbatus*; Terzea also mentions *Corvus corone*.

Layer: I

Date: LP LG Romanello-Azilian 14C = 12,600 ± 120–12,050 ± 150 Bölling/Dryas 2

Fauna: *Gavia* cf. *stellata*, *Cygnus* cf. *olor*, *Accipiter nisus*, *Gypaetus barbatus*, *Tetrao uro-*
gallus, *Alectoris graeca*, *Picus viridis*, *Nucifraga caryocatactes*, *Pyrhocorax graculus*,
Corvus monedula, *Corvus frugilegus*, *Corvus corax*, *Corvus corone*

Notes: Layer I = Lower layer; *Aquila chrysaetos* mentioned by Fischer & Stephan (1977); Romanello-Azilian=Clisurean

RM 5 Devecze (Bratca)

Type: c

Source: Wolf 1938–41

Layer: D

Date: “Diluvium”

Fauna: *Lagopus mutus*

Det.: Lambrecht

Notes: also known as Devence, Pestera Deventului; Jurcsák & Kessler (1973, 1986) mention no Pleistocene records from this site

RM 6 Galospetreu (Bihor)

Type: o

Sources: Jurcsák & Kessler 1973, 1986, 1988; Kessler 1981, 1993

Layer: Lower

Date: LP “Würm final” Gravettian

Fauna: *Anas* cf. *clypeata*, *Anas querquedula*, *Aythya fuligula*, *Tetrao tetrix*, *Lagopus* cf. *lagopus*, *Lagopus mutus*, *Coturnix coturnix*, *Gallinago gallinago*, *Turdus philomelos*

Det.: Kessler

Notes: also known as Cariera din D. Legii, Dealul Legii

RM 7 Gsprenghöhle (Brasov)

Alt.: 560

Type: c

Sources: Jurcsák & Kessler 1973; Lambrecht 1933; Wolf 1938–41 (Toula 1910)

Date: EPMP

Fauna: *Anser* sp.

Det.: Ehik

Notes: also known as Brassó, Kronstadt, Brasov

RM 8 Gura-Chindiei (Caras-Severin)

Source: Kessler 1985

Date: LP LG “Tardiglacialar”

Fauna: *Anas crecca*, *Bucephala clangula*, *Asio flammeus*, *Strix aluco*, *Apus apus*, *Dendrocopos medius*, *Dendrocopos major*, *Motacilla alba*, *Riparia riparia*, *Turdus merula*, *Turdus philomelos*, *Fringilla coelebs*, *Carduelis carduelis*

Det.: Kessler

RM 9 La Adam (Dobrogea)

Type: c

Sources: Musil 1980b; Samson & Radulescu 1959

Layer: 1

Date: LP Mousterian (Jüngerer Löss I (prob=IS 4))

Fauna: *Nyctea* sp.

Notes: in Vistorna valley

RM 10 Meresti (Harghita)

Source: Kessler 1993

Date: LP

Fauna: *Tetrao tetrax*, *Lagopus lagopus*, *Lagopus mutus*

Det.: Kessler

RM 11 Pestera Binder (Cluj)

Type: c

Sources: Jurcsák & Kessler 1986, 1988; Kessler 1983

Date: LP "Würm propriu" "Würmian timpuriu, Mousterian"

Fauna: *Gyps fulvus*, *Pyrhocorax graculus*

Det.: Kessler

Notes: also known as Cheile Turzii and Pestera lui Binder

RM 12 Pestera Bordu Mare (Hunedoara)

Alt.: 650

Type: c

Sources: Jurcsák & Kessler 1986, 1988; Kessler 1981, 1985

Date: LP "Würm propriu" 14C (Mousterian) = 39.5–43.6 KA BP (Climatic phases Nandru 1,2 and Ohaba A,B)

Fauna: *Plegadis falcinellus*, *Cygnus olor*, *Anser albifrons*, *Anser* sp., *Anas* sp., *Mergus merganser*, *Aquila chrysaetos*, *Aegypius monachus*, *Gypaetus barbatus*, *Falco tinnunculus*, *Falco vespertinus*, *Falco subbuteo*, *Lagopus lagopus*, *Lagopus mutus*, *Gallus gallus*, *Coturnix coturnix*, *Tringa totanus*, *Scolopax rusticola*, *Turdus pilaris*, *Turdus viscivorus*, *Lanius collurio*, *Corvus corone*, *Corvus corax*, *Corvus monedula*, *Pyrhocorax graculus*, *Coccothraustes coccothraustes*, *Carduelis carduelis*

Det.: Kessler

Notes: also known as Ohaba-Ponor, Ponor-Ohaba, Pestera Bordul Mare & Nandór-höhle

RM 13 Pestera Cioarei (Gorj)

Alt.: 350

Type: c

Sources: Jurcsák & Kessler 1986, 1988; Kessler 1985; Terzea 1987

Layer: unstratified

Date: LP End Riss/Würm-Late Glacial

Fauna: Strigidae sp., *Falco tinnunculus*, *Lagopus mutus*, *Bubo bubo*, *Asio otus*, *Turdus merula*, *Turdus pilaris*, *Turdus viscivorus*, *Corvus monedula*

Layer: 17

Date: LP LG ? Late Würm

Fauna: *Crex crex*, *Tringa* cf. *totanus*, *Actitis* cf. *hypoleucos*

Layer: 15

Date: LP Late Würm, "Aurignacian", post-Stillfried B stadial

Fauna: *Tetrao tetrix*, *Pyrrhonorax graculus*, *Carduelis* cf. *carduelis*

Layer: 14

Date: LP Mid-Würmian Stillfried B interstadial

Fauna: *Coturnix coturnix*, *Crex crex*, *Corvus* sp.

Layer: 13

Date: LP Mid-Würmian Arcy/Stillfried B stadial

Fauna: *Coturnix coturnix*, *Crex crex*, *Actitis* cf. *hypoleucos*, *Turdus* sp., *Pyrrhonorax pyrrhonorax*, *Carduelis* cf. *carduelis*

Det.: Kessler

RM 14 Pestera Climente I (Caras-Severin)

Alt.: 178

Type: c

Sources: Jurcsák & Kessler 1986; Kessler 1984, 1985; Terzea 1986

Layer: -150–85

Date: LP LG, Bölling-Dryas II ca. 12–13 BP, Late Gravettian

Fauna: *Lagopus mutus*, *Pyrrhonorax graculus*

Layer: -165–160

Date: LP Upper Würm, Late Gravettian, Early Dryas I ca. 15–17 KA BP

Fauna: *Pyrrhonorax graculus*

Layer: -230–200

Date: LP Middle Würmian Arcy/Stillfried B interstadial ca. 30 KA BP

Fauna: *Gallinula chloropus*

Layer: -250–230

Date: LP Middle Würmian pre-Arcy/Stillfried B stadial ca. 35 KA BP

Fauna: *Lagopus mutus*, *Corvus corax*

Layer: Lower ("nivelele inferioare")

Date: LP Lower Würmian

Fauna: *Tetrao tetrix*

Det.: Kessler

Notes: also known as Climente II

RM 15 Pestera Coiba Mare (Alba)

Alt.: 1,000

Type: c

Sources: Jurcsák & Kessler 1986, 1988; Kessler 1983

Date: LP "Würm final" "Würmian târziu"

Fauna: *Bonasa bonasia*, *Sitta europaea*, *Turdus merula*, *Nucifraga caryocatactes*, *Fringilla coelebs*, *Pyrrhula pyrrhula*

Det.: Kessler

RM 16 Pestera Curata (Hunedoara)

Type: c

Sources: Fischer & Stephan 1977; Jánossy 1965a, 1977a, 1981a; Jurcsák & Kessler 1986, 1988; Kessler 1985

Layer: 5–6 (“Untere, rote Schicht”)

Date: LP Mousterian, Early Würm, “Würm I-II” /Nandru/Ohaba/Herculane phases

Fauna: *Anas penelope*, *Anas platyrhynchos*, *Aythya nyroca*, *Aegypius monachus*, *Buteo* cf. *lagopus*, *Circus* sp., *Aquila* cf. *pomarina*, *Haliaeetus albicilla*, *Pernis apivorus*, *Falco* cf. *tinnunculus*, *Tetrao tetrax*, *Tetrao urogallus*, *Perdix perdix*, *Crex crex*, *Strix nebulosa*, *Strix uralensis*, *Asio flammeus*, *Picus canus*, *Turdus* cf. *pilaris*, *Sturnus vulgaris*, *Pyrrhocorax graculus*, *Corvus monedula*, *Corvus corax*, *Corvus corone*

Det.: Jánosy; Fischer & Stephan; Kessler

Notes: *Aquila* cf. *clanga* redetermined as *Aquila* cf. *pomarina* by Jánosy (1981a); also known as Nandru

RM 18 Pestera Gura Cheii (Brasov)

Type: c

Source: Jurcsák & Kessler 1988

Date: LP Aurignacian

Fauna: *Anas crecca*, *Lagopus lagopus*, *Lagopus mutus*, *Crex crex*, *Tringa* cf. *glareola*, *Athene noctua*, *Bombicilla garrulus*, *Turdus philomelos*, *Pyrrhocorax graculus*

Det.: Kessler

RM 19 Pestera Hotilor (Caras-Severin)

Alt.: 257

Type: c

Sources: Jurcsák & Kessler 1986, 1988; Kessler 1985; Terzea 1986

Date: LP “Würm final”

Fauna: *Falco tinnunculus*, *Hirundo rustica*

Layer: 8

Date: LP LG Bölling or Dryas II

Fauna: *Tringa* cf. *totanus*, *Sturnus vulgaris*

Layer: 7

Date: LP Dryas 1? ca. 13–17 KA BP

Fauna: *Pyrrhocorax graculus*

Layer: 6

Date: LP Laugerie/Lascaux interstadial ca. 17–19 KA BP

Fauna: *Turdus viscivorus*

Layer: 5

Date: LP Early Upper Würmian, post-Stillfried B, ca. 20–25 KA BP

Fauna: *Anthus trivialis*

Det.: Kessler

RM 20 Pestera Icoana (Caras-Severin)

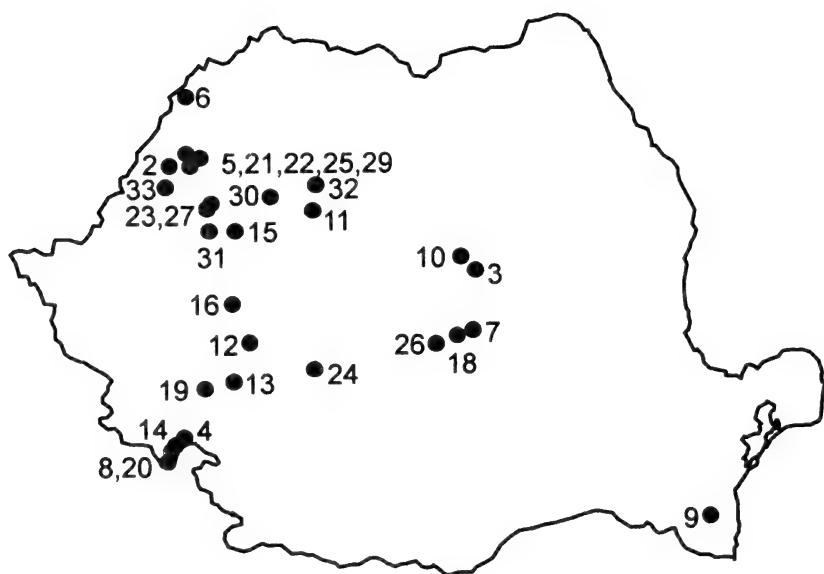
Type: c

Sources: Jurcsák & Kessler 1986, 1988; Kessler 1985

Date: LP LG “tardiglacial”

Fauna: *Strix aluco*, *Corvus corax*

Det.: Kessler



Not exactly localized sites: 1,28,34

ROMANIA (RM)

RM 21 Pestera Igrita (Bihor)

Type: c

Sources: Jurcsák & Kessler 1986, 1988; Kessler 1983

Date: LP "Würm final"

Fauna: *Haliaeetus albicilla*, *Tetrao urogallus*, *Lagopus mutus*, *Gallus gallus*, *Pluvialis squatarola*, *Strix aluco*, *Prunella modularis*, *Fringilla coelebs*

Det.: Lambrecht; Kessler

RM 22 Pestera Izbîndis (Bihor)

Type: c

Sources: Jurcsák & Kessler 1986, 1988; Kessler 1983

Date: LP "Würm final"

Fauna: *Tetrao tetrix*, *Gallus gallus*, *Columba palumbus*, *Cinclus cinclus*, *Turdus pilaris*, *Turdus viscivorus*, *Corvus monedula*

Det.: Kessler

RM 23 Pestera Magura (Bihor)

Alt.: 500

Type: c

Sources: Jurcsák & Kessler 1986, 1988; Kessler 1983

Date: LP "Würm propriu" "Würmian timpuriu-Würmian mediu"

Fauna: *Dendrocopos medius*, *Hirundo rustica*, *Bombycilla garrulus*, *Turdus pilaris*, *Turdus viscivorus*, *Turdus philomelos*, *Turdus merula*, *Lanius minor*, *Garrulus glandarius*, *Coccothraustes coccothraustes*, *Pyrrhula pyrrhula*, *Carduelis chloris*, *Emberiza* sp.

Det.: Kessler

RM 24 Pestera Muierii (Gorj)

Type: c

Sources: Jurcsák & Kessler 1986, 1988; Kessler 1985

Date: LP "Würm propriu"

Fauna: *Anserinae* sp., *Aquila chrysaetos*, *Tetrao tetrix*, *Columba palumbus*

Det.: Kessler

RM 25 Pestera Napisteleu (Bihor)

Type: c

Sources: Jurcsák 1974; Jurcsák & Kessler 1986, 1988; Kessler 1977a, 1983

Date: LP "Würm final" "Würm III" "Würmian tardiglacial"

Fauna: *Mergus* cf. *serrator*, *Gyps fulvus*, *Bonasa bonasia*, *Scolopax rusticola*, *Turdus* cf. *viscivorus*, *Corvus corone*, *Corvus monedula*, *Coccothraustes coccothraustes*

Det.: Kessler

Notes: also known as Pestera cea Mica, Pestera Mica

RM 26 Pestera Rece (Dîmbovita)

Type: c

Sources: Jurcsák & Kessler 1986, 1988; Kessler 1985

Date: LP LG "Würm final"

Fauna: *Gyps fulvus*

Det.: Kessler

RM 27 Pestera Tibicoaia (Bihor)

Alt.: 500

Type: c

Sources: Jurcsák & Kessler 1986, 1988; Kessler 1983

Date: LP "Würm propriu" "Würmian timpuriu-Würmian mediu"

Fauna: *Falco tinnunculus*, *Tetrao tetrix*, *Perdix perdix*, *Fulica atra*, *Gallinago gallinago*, *Bubo bubo*, *Asio otus*, *Asio flammeus*, *Strix aluco*, *Turdus viscivorus*, *Turdus philomelos*, *Turdus merula*

Det.: Kessler

RM 28 Pestera Ursilor (Bihor)

Type: c

Sources: Jurcsák & Kessler 1986, 1988; Kessler 1978a, 1983, 1985

Date: LP "End Riss/Würm", "Würmian incipient"

Fauna: Strigidae sp., *Parus major*, *Pyrrhocorax graculus*, *Nucifraga caryocatactes*,
Fringilla coelebs

Det.: Kessler

RM 29 Pestera cu Apa (Bihor)

Type: c

Sources: Jurcsák & Kessler 1986; Mottl 1941

Date: LP "Würm propriu"

Fauna: *Lagopus mutus*

Det.: Mottl

Notes: also known as Pince Cave ?

RM 30 Pestera cu Oase (Cluj)

Type: c

Sources: Jurcsák & Kessler 1986, 1988; Kessler 1983; Lambrecht 1915a; Wolf
 1938–41

Date: LP "Würm final"

Fauna: *Falco tinnunculus*, *Tetrao urogallus*, *Lagopus mutus*, *Anthus trivialis*, *Turdus*
pilaris, *Pyrrhocorax graculus*, *Garrulus glandarius*

Det.: Lambrecht

Notes: also known as Gyalyhöhle, Hideg-Szamos, Kalten-Szamos-tal & Somesul
 Rece

RM 31 Pestera din Platoul Cîmpeneasca (Bihor)

Type: c

Sources: Jurcsák & Kessler 1986; Kessler 1983, 1985

Date: LP LG "tardiglaciär"

Fauna: *Anas clypeata*, *Scolopax rusticola*, *Picus viridis*

Det.: Kessler

Notes: *Picus canus* in Kessler (1983)

RM 32 Pestera din Someşeni (Cluj)

Type: o

Source: Jurcsák & Kessler 1986, 1988

Date: LP "Würm final"

Fauna: *Lagopus mutus*, *Turdus pilaris/merula*

Det.: Lambrecht

Notes: also known as Szamosfalva Kies-Grube and Someşeni

RM 33 Rîpa (Bihor)

Alt.: 210

Type: o ?

Sources: Csák 1978; Hamar & Csák 1969; Jánosy 1977a; Jurcsák & Kessler 1973,
 1986, 1988; Kessler 1974a, 1977b, 1985

Date: LP "End Riss/Würm", "Würm I" Mousterian

Fauna: *Anas penelope*, *Anas clypeata*, *Gyps fulvus*, *Lagopus mutus*, *Motacilla flava*, *Turdus pilaris*, *Acrocephalus arundinaceus*

Det.: Kessler

Notes: these species mentioned only by Jurcsák & Kessler (1986), who on the other hand omit *Anthus trivialis/campestris*, *Turdus viscivorus*, *Pyrhcorax graculus*, *Corvus frugilegus*

Date: LP "End Riss/Würm", "Würm I" Mousterian

Fauna: *Anas platyrhynchos*, *Anas strepera*, *Anas querquedula*, *Tadorna ferruginea*, *Aquila heliaca*, *Falco naumanni*, *Falco tinnunculus*, *Tetrao urogallus*, *Tetrao tetrix*, *Lagopus lagopus*, *Coturnix coturnix*, *Rallus aquaticus*, *Crex crex*, *Columba palumbus*, *Asio flammeus*, *Anthus trivialis/campestris*, *Turdus viscivorus*, *Parus major*, *Carduelis aff. cannabina*, *Pyrhcorax graculus*, *Pica pica*, *Corvus monedula*, *Corvus frugilegus*, *Corvus cf. corone*

Det.: Jánosy, Kessler

Notes: also known as Burzau, Cariera de pe D. Costoi

RM 34 Cheile Nerei (Caras-Severin)

Type: c

Source: Jurcsák & Kessler 1988

Date: LP

Fauna: *Gyps fulvus*

Det.: Kessler

RUSSIA

RO 1 Achinskaya Stoyanka (Krasnoyarsk)

Source: Tseitlin 1979

Date: LP

Fauna: *Lagopus* sp.

Det.: Avramenko ?

RO 2 Afontova Gora (Krasnoyarsk)

Type: o

Source: Burchak-Abramovich 1975 (Tugarinov 1932)

Date: LP UP ("Magdalenian") 14C=20,900±300 BP

Fauna: *Anser fabalis*, *Falco cf. rusticolus*, *Lagopus lagopus*, *Lagopus mutus*, *Corvus corax*, *Corvus cf. monedula*

Det.: Tugarinov

RO 3 Akhshatyr (Krasnodar)

Alt.: 320

Type: c

Sources: Burchak-Abramovich 1969a, 1975; Burchak-Abramovich & Lakerbai 1974; Gerasimov 1978; Musil 1980b; Potapova 1992 (Vekilova & Grushchenko 1972; Vereshchagin 1959)

Date: LP UP

Fauna: *Accipiter gentilis*, *Pica pica*

Det.: Vereshchagin

Date: LP Mousterian

Fauna: *Aquila/Haliaeetus* sp.

Layer: 3–6

Date: LP UP 14C=19,500±500 BP (layer 3)

Fauna: *Hieraaetus pennatus*, *Garrulus glandarius*

Det.: Ermolova

Layer: 7–8

Date: LP Mousterian 14C=35,000±2,000 BP (layer 7)

Fauna: *Pyrhocorax pyrrhocorax*

Det.: Ermolova

RO 4 Avdeyevo (Komsik)

Source: Baryshnikov & Potapova 1992

Date: LP UP 14C=13,900–22,700 BP

Fauna: *Lagopus lagopus*

RO 5 Barakaeskaya Peshchera (Krasnodar)

Alt.: 700

Type: c

Sources: Baryshnikov 1991; Baryshnikov & Cherepanov 1985

Layer: 2

Date: LP Mousterian, Early Würm

Fauna: *Anas querquedula/crecca*, *Columba livia*

Layer: 4

Date: LP Mousterian, Early Würm

Fauna: *Corvus corax*

Det: Burchak-Abramovich

Notes: also known as Barakayevskaya

RO 6 Berelekh (Indigirka)

Type: o

Sources: Harington 1978; Soffer 1985; Tseitlin 1979; Vereshchagin 1977; Vereshchagin & Ukraintseva 1985

Date: LP UP 14C=10,440±100–13,700±400 BP

Fauna: *Lagopus lagopus*

Notes: also known as Berelyekh

RO 7 Bol'shoi Gluchoi (Middle Urals)

Type: c

Source: Potapova 1991

Layer: VII Date: LP UP

Fauna: *Anser* sp., *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao urogal-*
lus, *Tetrao tetrix*, *Bonasa bonasia*, *Strix aluco*, *Strix* sp., *Asio flammeus*, *Dendroco-*
pos major, *Pica pica*, *Loxia curvirostra*

Layer: IX

Date: MP Acheulean

Fauna: *Anser* cf. *albifrons*, *Anser erythropus*, *Anas* cf. *strepera*, *Anas penelope*, *Anas acuta*, *Buteo* sp., *Lagopus lagopus*, *Tetrao tetrix*, *Strix aluco*, *Turdus viscivorus*

Det.: Potapova

Notes: also known as Bolshaia Glukhaia

RO 8 Bugatsch (Krasnoyarsk)

Type: o

Source: Burchak-Abramovich 1975 (Gromov 1948)

Date: LP UP

Fauna: *Anser fabalis*, *Lagopus lagopus*, *Lagopus mutus*

RO 9 Chorenchoi (Buryat-Mongol Republic)

Type: o

Source: Lambrecht 1933

Fauna: *Struthio camelus*

RO 10 Dyuktaiskaya Peshchera (Yakutia)

Alt.: 112

Type: c

Source: Tseitlin 1979 (Mochanov 1970)

Layer: VIIA-IX

Date: LP UP 12–14 KA BP

Fauna: *Anser anser*, *Anas strepera*, *Anas crecca/querquedula*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Larus* sp., *Sterna hirundo*, *Corvus* sp. ?,

Notes: also known as Diuktai

RO 11 Fedyevo (Angara)

Source: Tseitlin 1979

Date: LP UP Taimyrsk Interstadial (=Alleröd)

Fauna: *Lagopus* sp. ?

Notes: also known as Fediaevo

RO 12 Gudskiy Naves 1 (Krasnodar)

Type: c

Sources: Baryshnikov 1979; Baryshnikov & Cherepanov 1985

Date: LP Mousterian-Upper Paleolithic

Fauna: *Pyrhacorax graculus*, *Corvus corax*, *Corvus corone*

Det.: Pastykhov ?

Notes: also known as Monasheskaya

RO 13 Ignatievskaya (Urals)

Source: Baryshnikov & Potapova 1992

Date: LP

Fauna: *Lagopus lagopus*

RO 14 Il'skaya I (North Caucasus)

Alt.: 100

Type: o

Source: Hoffecker, Baryshnikov & Potapova 1991

Date: LP Mousterian

Fauna: *Anas platyrhynchos*, *Aegypius monachus*, *Pica pica*

Stored: Zoological Institute Russian Academy of Science

RO 15 Juresan basin (Chelyabinsk)

Type: c

Source: Burchak-Abramovich 1975 (Karacharovskii 1951)

Date: LP UP

Fauna: *Anser* sp., *Anas* sp., *Accipiter* sp., *Aquila* sp., *Falco* sp., *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Columba* sp., *Hirundo* sp., *Pica pica*, *Corvus corone*

Det.: Subareva

Notes: nine caves

RO 16 Karmalki (Tatar ASSR)

Type: o

Sources: Burchak-Abramovich 1975; Vereshchagin 1953 (Voinstvenskij 1960)

Date: LP

Fauna: *Anas platyrhynchos*, *Anas acuta*, *Anas penelope*, *Anas crecca*, *Anas clypeata*, *Buteo* sp., *Haliaeetus albicilla*, *Circus aeruginosus*, *Circus macrourus*, *Circus cyaneus*, *Falco naumanni*, *Falco tinnunculus*, *Lagopus lagopus*, *Tetrao tetrix*, *Tetrao urogallus*, *Grus grus*, *Anthropoides virgo*, *Porzana* sp., *Columba oenas*, *Vanellus vanellus*, *Numenius arquata*, *Limosa limosa*, *Calidris alpina*, *Philomachus pugnax*, *Tringa ochropus*, *Gallinago gallinago*, *Strix aluco*, *Asio flammeus*, *Caprimulgus europaeus*, *Motacilla alba*, *Oenanthe oenanthe*, *Turdus pilaris*, *Turdus viscivorus*, *Corvus corax*, *Corvus frugilegus*, *Emberiza* sp.

Det.: Voinstvenskij

Notes: in Vereshchagin's list the following species (missing from Burchak-Abramovich's 1975 list), are mentioned: *Botaurus stellaris*, *Anas querquedula*, *Buteo buteo*, *Porzana porzana*, *Alauda arvensis*, *Turdus philomelos*, *Turdus iliacus*, *Parus major*, *Phylloscopus* sp., *Corvus corone*, *Fringilla coelebs***RO 17 Khotylevo II (Bryansk)**

Type: o

Sources: Burchak-Abramovich & Zavernyaev 1985; Soffer 1985

Date: LP Gravettian-Late Aurignacian

Fauna: *Gavia stellata*, *Anas penelope*, *Aythya ferina*, *Clangula hyemalis*, *Tetrao tetrix*, *Lagopus lagopus*, *Bonasa bonasia*, *Larus argentatus*, *Corvus corax*

Det.: Burchak-Abramovich

Date: LP UP 14C=23,660±270-24,950±400 BP

Fauna: *Bucephala clangula*, *Lagopus lagopus*, *Alauda arvensis*, *Galerida cristata*, *Emberiza citrinella*

Notes: second list of species from Soffer (1985)

RO 18 Klyuchevaya (Urals)

Type: c

Source: Baryshnikov & Potapova 1992

Date: LP

Fauna: *Lagopus lagopus*, *Lagopus mutus*

RO 19 Kokorevo II (Yenisey)

Sources: Abramova et al. 1975; Tseitlin 1979

Layer: 1–2

Date: LP 22–24 KA BP?

Fauna: *Lagopus lagopus*

Det.: Ermolova

RO 20 Kostenki ()

Type: c

Sources: Baryshnikov & Potapova 1988, 1992

Date: LP 14C=22,270–32,700 BP

Fauna: *Lagopus lagopus*

RO 21 Krasniy Yar (Angara)

Type: o

Source: Tseitlin 1979

Layer: Upper Cultural Layer

Date: LP UP ca. 13–20 KA BP

Fauna: *Lagopus lagopus*

Det.: Ermolova, Gromova

RO 22 Liventzovka (Taganrog)

Type: o

Sources: Baigusheva 1971; Mlíkovský 1996 (Jan'kova 1959)

Date: LPI/EP "Akchagyl"

Fauna: *Cygnus* sp., *Struthio* sp.

Stored: Rostov County Museum of National History

Notes: also known as Livenetzka, Livenek

RO 23 Maly Vorontsovskaya Peshchera (Krasnodar)

Alt.: 230

Type: c

Sources: Baryshnikov & Cherepanov 1985; Burchak-Abramovich & Lakerbai 1974

Date: LP Mousterian 14C=35,680±480, UP=14,100±140 BP

Fauna: *Anas platyrhynchos*, *Anas* cf. *querquedula*, *Pyrhcorax pyrrhcorax*

Det.: Burchak-Abramovich

Notes: also known as Partisanskaja

RO 24 Mal'ta (Angara)

Type: o

Source: Tseitlin 1979

Date: LP UP ca. 23–24 KA BP End Kargino/Earliest Sartan

Fauna: *Anser* sp., *Larus* sp.

Det.: Tugarinov

RO 25 Matuzka (Krasnodar)

Alt.: 800

Type: c

Source: Potapova 1992

Layer: shurf No 3

Date: LP

Fauna: *Gyps/Aegypius* sp., *Circus aeruginosus*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Apus apus*, *Hirundo rustica*, *Delichon urbica*, *Saxicola rubetra*, *Turdus* cf. *philomela*, *Sylvia curruca*, *Sturnus vulgaris*, *Pyrhacorax pyrrhacorax*, *Pyrhacorax graculus*, *Carduelis chloris*, *Miliaria calandra*

Layer: osyp'

Date: LP

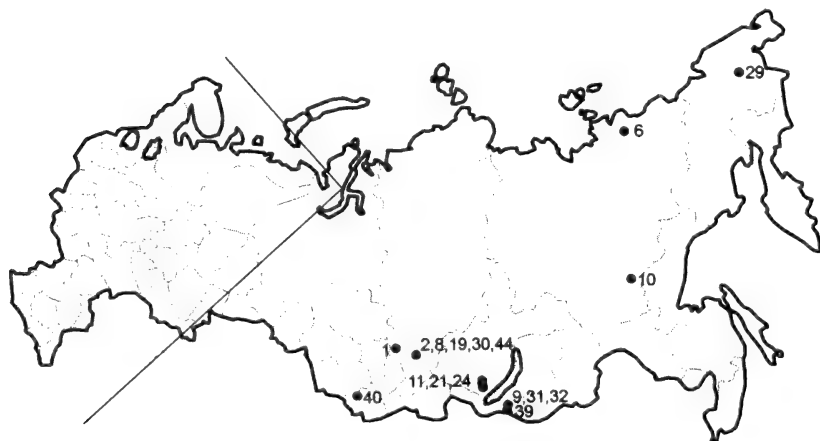
Fauna: *Carduelis spinus*

Layer: 3a

Date: LP Mousterian

Fauna: *Apus apus*, *Pyrhacorax pyrrhacorax*

Layer: 3b



RUSSIA (RO)

Date: LP Mousterian

Fauna: *Perdix perdix*, *Pyrhacorax pyrrhacorax*, *Carpodacus erythrinus*

Layer: 4a

Date: LP Mousterian

Fauna: *Apus apus*, *Pyrhacorax pyrrhacorax*

Layer: 4a-1

Date: LP Mousterian

Fauna: *Buteo* sp.

Layer: 4a-2

Date: LP Mousterian

Fauna: *Delichon urbica*, *Turdus* sp., *Pyrhacorax graculus*, *Carduelis spinus*

Layer: 4b-2

Date: LP Mousterian

Fauna: *Delichon urbica*, *Turdus* sp.

Layer: 4b

Date: LP Mousterian

Fauna: *Coturnix coturnix*, *Apus melba*, *Pica pica*

Layer: 4c-1

Date: LP Mousterian

Fauna: *Perdix perdix*, *Hirundo rustica*

Layer: 5-3

Date: LP Mousterian

Fauna: *Perdix perdix*, *Pica pica*, *Emberiza citrinella*

Layer: 5b

Date: LP Mousterian

Fauna: *Apus melba*, *Turdus viscivorus*

Layer: 6

Date: LP Mousterian

Fauna: *Alectoris graeca*, *Tetrao mlokosiewiczii*, *Perdix perdix*, *Coturnix coturnix*, *Asio* sp.,
Apus melba, *Hirundo rustica*, *Turdus viscivorus*, *Garrulus glandarius*, *Pyrhacorax*
pyrrhacorax, *Corvus frugilegus*

Layer: 6-1

Date: LP Mousterian

Fauna: *Coturnix coturnix*, *Garrulus glandarius*, *Pyrhacorax pyrrhacorax*, *Carduelis*
chloris

Layer: 6-2

Date: LP Mousterian

Fauna: *Perdix perdix*, *Asio flammeus*, *Turdus philomelos*

Layer: 7-1

Date: LP Mousterian

Fauna: *Perdix perdix*, *Lullula arborea*, *Hirundo rustica*, *Phoenicurus phoenicurus*, *Tur-*
dus philomelos, *Turdus viscivorus*, *Pyrhacorax pyrrhacorax*, *Pyrhacorax graculus*

Layer: 7-2

Date: LP Mousterian

Fauna: *Perdix perdix*, *Turdus viscivorus*, *Sturnus vulgaris*, *Pyrhacorax pyrrhacorax*,
Carduelis carduelis, *Carpodacus rubicilla*, *Miliaria calandra*

Layer: 7–3

Date: LP Mousterian

Fauna: *Anas querquedula*, *Tetraogallus caucasicus*

Det.: Potapova

RO 26 Medvezhya peshchera (Northern Urals)

Alt.: 200

Type: c

Source: Potapova 1990

Layer: 3

Date: LP ca. 20,000–30,000 BP

Fauna: *Podiceps auritus/nigricollis*, *Anser anser*, *Anser albifrons*, *Anser fabalis*, *Branta ruficollis*, *Anas platyrhynchos*, *Anas crecca*, *Anas strepera*, *Anas querquedula*, *Anas clypeata*, *Somateria spectabilis*, *Aythya ferina*, *Clangula hyemalis*, *Mergus serrator*, *Mergus merganser*, *Aythya fuligula*, *Buteo* sp., *Circus cyaneus*, *Circus aeruginosus*, *Falco tinnunculus*, *Falco peregrinus*, *Perdix perdix*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Bonasa bonasia*, *Gallinula chloropus*, *Pluvialis squatarola*, *Vanellus vanellus*, *Tringa nebularia*, *Philomachus pugnax rhyphaeicus*, *Gallinago media*, *Scolopax rusticola magnus*, *Numenius phaeopus*, *Limosa* sp., *Stercorarius parasiticus*, *Sterna hirundo*, *Nyctea scandiaca*, *Surnia ulula*, *Strix nebulosa*, *Strix aluco*, *Strix* sp., *Asio flammeus*, *Aegolius funereus*, *Dendrocopos major*, *Lullula arborea*, *Alauda arvensis*, *Hirundo rustica*, *Delichon urbica*, *Turdus pilaris*, *Turdus iliacus*, *Turdus philomelos*, *Turdus viscivorus*, *Pica pica*, *Corvus corone*

Layer: 3–4

Date: LP ca. 20,000–30,000 BP

Fauna: *Anser anser/fabalis*, *Anas platyrhynchos*, *Anas crecca*, *Anas* sp., *Anas clypeata*, *Clangula hyemalis*, *Aythya fuligula*, *Buteo* sp., *Perdix perdix*, *Lagopus mutus*, *Lagopus lagopus*, *Tetrao tetrix*, *Bonasa bonasia*, *Pluvialis squatarola*, *Philomachus pugnax rhyphaeicus*, *Scolopax rusticola magnus*, *Nyctea scandiaca*, *Turdus* cf. *ruficollis*, *Turdus iliacus*, *Turdus viscivorus*

Layer: 4

Date: LP ca. 20,000–30,000 BP

Fauna: *Anser albifrons*, *Anas platyrhynchos*, *Anas crecca*, *Anas strepera*, *Anas penelope*, *Anas querquedula*, *Anas clypeata*, *Clangula hyemalis*, *Mergus albellus*, *Aythya fuligula*, *Buteo* sp., *Falco tinnunculus*, *Perdix perdix*, *Lagopus mutus*, *Lagopus lagopus*, *Tetrao tetrix*, *Tetrao urogallus*, *Bonasa bonasia*, *Pluvialis squatarola*, *Philomachus pugnax rhyphaeicus*, *Gallinago gallinago*, *Scolopax rusticola magnus*, *Limosa* sp., *Stercorarius parasiticus*, *Nyctea scandiaca*, *Surnia ulula*, *Asio flammeus*, *Dendrocopos major*, *Hirundo rustica*, *Delichon urbica*, *Turdus pilaris*, *Turdus iliacus*, *Turdus philomelos*, *Turdus viscivorus*, *Nucifraga caryocatactes*, *Corvus corone*

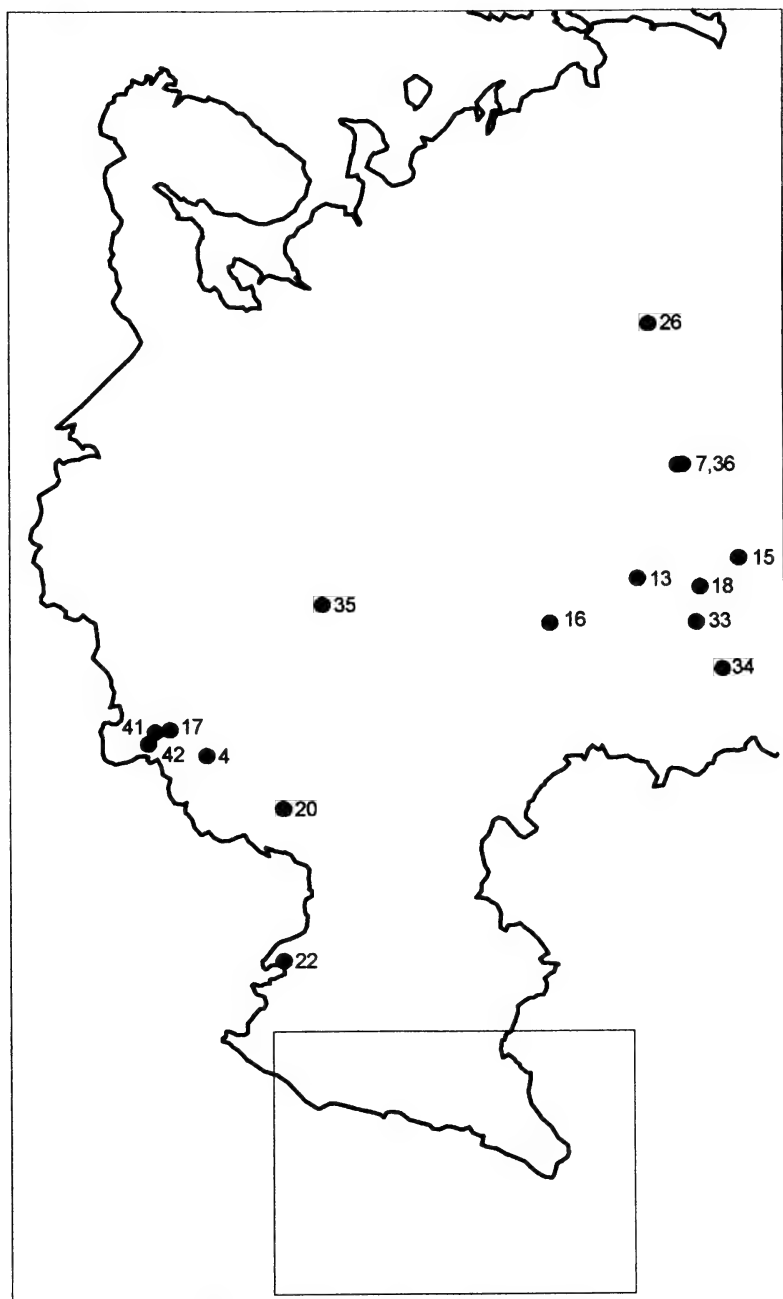
Det.: Potapova

RO 27 Mezmaiskaya (Krasnodar)

Alt.: 1,350

Type: c

Sources: Baryshnikov, Hoffecker & Burgess 1996; Baryshnikov & Potapova 1989



RUSSIA (RO)

[For sites in Caucasian Russia see p. 198.]

Layer: 1–2

Date: LP/Hol (mixed layer)

Fauna: *Pyrrhonorax pyrrhonorax*

Layer: 2

Date: LP IS 3, Mousterian

Fauna: *Aegypius monachus*, *Columba livia*, *Pyrrhonorax graculus*, *Emberiza* sp.

Layer: 2A

Date: LP IS 3 35–40 KA BP, Mousterian

Fauna: *Pyrrhonorax graculus*

Layer: 2B

Date: LP IS 3 35–40 KA BP, Mousterian

Fauna: *Falco* sp., *Columba livia*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*

Layer: 3

Date: LP IS 3, Mousterian

Fauna: *Coturnix coturnix*, *Pyrrhonorax graculus*

Det.: Baryshnikov & Potapova

RO 28 Navalishinskaya Peshchera (Krasnodar)

Type: c

Sources: Baryshnikov & Cherepanov 1985; Burchak-Abramovich & Lakerbai 1974, Potapova 1992

Date: LP Mousterian

Fauna: *Anas clypeata*, *Circus aeruginosus*, *Tetrao mlokosiewiczii*

Det.: Burchak-Abramovich

RO 29 Olyor suite (Chukochiya River)

Type: o

Source: Harington 1978

Date: EP-Early MP “Mindel-? Kansan” ca. 0.5–1.4 MA BP

Fauna: *Gavia immer*

RO 30 Pereseletschesky punkt (Krasnoyarsk)

Type: o

Source: Burchak-Abramovich 1975 (Tugarinov 1932)

Date: LP UP Norilsk stadial (=Dryas III) ?

Fauna: *Lagopus lagopus*

Det.: Tugarinov

Notes: also known as Pereselencheskii Punkt

RO 31 Selenga River (Buryat-Mongol Republic)

Type: o

Source: Lambrecht 1933

Fauna: *Struthio camelus*

Notes: perhaps the same as the next site ?

RO 32 Selengiskaja Daurija (Buryat-Mongol Republic)

Type: o

Source: Burchak-Abramovich 1975 (Tugarinov 1930)

Date: LPl/Pleis

Fauna: *Struthio* sp.

Det.: Tugarinov

RO 33 Sergievskaya (Southern Urals)

Type: c

Source: Baryshnikov & Potapova 1992

Date: LP

Fauna: *Lagopus lagopus***RO 34 Smelovskaya II (Southern Urals)**

Type: c

Source: Baryshnikov & Potapova 1992

Date: LP

Fauna: *Lagopus lagopus***RO 35 Sungir (Vladimir)**

Type: o

Sources: Burchak-Abramovich 1975; Gromov 1966

Date: LP "Solutreen or Magdalenian" 14C=ca. 24,000–28,000 BP

Fauna: *Tetrao tetrix*, *Gallus* sp., *Larus* cf. *argentatus cachinnans*, *Larus* sp.

Det.: Gromov ?

RO 36 Talitski (Middle Urals)

Type: o

Source: Kozlowski & Bandi 1984 (Gromov 1948)

Date: LP UP

Fauna: *Tetraonidae* sp.

Notes: also known as Ostrovskaya

RO 37 Transbaikal (?)

Type: o

Source: Gaiduchenko & Tivanenko 1978

Date: LP-Hol

Fauna: *Struthio* cf. *anderssoni***RO 38 Treugolnaya (Caucasus)**

Alt.: 1,510

Type: c

Sources: Baryshnikov & Potapova 1995; Potapova & Baryshnikov 1993

Layer: 2–3

Date: LP/Hol (layer 2 Hol, 3 Valday glaciation)

Fauna: *Tetraogallus caucasicus*, *Perdix perdix*, *Asio flammeus*, *Eremophila alpestris*, *Turdus torquatus*, *Turdus* sp.

Layer: 4a

Date: MP Acheulean "Mindel" IS 7

Fauna: *Perdix palaeoperdix*

Layer: 4b

Date: MP Acheulean "Mindel" IS 8

Fauna: *Perdix palaeoperdix*, *Columba livia*, *Melanocorypha calandra*, *Lullula arborea*, *Motacilla alba*, *Pyrhcorax pyrhcorax primigenius*, *Pyrhcorax graculus vetus*

Layer: 4c

Date: MP Acheulean "Mindel" IS 9

Fauna: *Perdix palaeoperdix*, *Asio flammeus*, *Lullula arborea*, *Pyrhcorax pyrhcorax primigenius*

Layer: 4d

Date: MP Acheulean "Mindel" IS 9

Fauna: *Pyrhcorax graculus vetus*

Layer: 5a

Date: MP Acheulean "Mindel" IS 10

Fauna: *Phasianus colchicus*, *Eremophila alpestris*, *Pyrhcorax graculus vetus*

Layer: 5b

Date: MP Acheulean "Mindel" ESR=393±27 KA BP IS 10

Fauna: *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Asio flammeus*, *Apus apus*, *Hirundo rustica*, *Delichon urbica*, *Melanocorypha calandra*, *Melanocorypha yeltoniensis*, *Eremophila alpestris*, *Lullula arborea*, *Pyrhcorax pyrhcorax primigenius*, *Pyrhcorax graculus vetus*, *Miliaria calandra*

Layer: 5c

Date: MP Acheulean "Mindel" IS 11

Fauna: *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Hirundo rustica*, *Melanocorypha yeltoniensis*, *Lullula arborea*, *Alauda arvensis*, *Pyrhcorax pyrhcorax primigenius*, *Pyrhcorax graculus vetus*

Layer: 7a

Date: MP Acheulean "Günz-Mindel" ESR=583±25 KA BP IS 15/16

Fauna: *Alectoris graeca mediterranea*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Delichon urbica*, *Pyrhcorax pyrhcorax primigenius*, *Pyrhcorax graculus vetus*

Layer: 6

Date: MP Acheulean "Günz-Mindel" IS 15

Fauna: *Perdix palaeoperdix*, *Delichon urbica*, *Pyrhcorax pyrhcorax primigenius*, *Pyrhcorax graculus vetus*

Layer: 7b

Date: MP Acheulean "Günz-Mindel" IS 17?

Fauna: *Perdix palaeoperdix*, *Motacilla alba*, *Pyrhcorax pyrhcorax primigenius*, *Pyrhcorax graculus vetus*, *Miliaria calandra*

Det.: Potapova; Baryshnikov

Stored: Department of Fauna History, Zoological Institute of Russian Academy of Science (St Petersburg)

RO 39 Troitzkosavask (Buryat-Mongol Republic)

Type: o

Source: Lambrecht 1933

Fauna: *Struthio camelus*

RO 40 Ust'-Kanskaya Peshchera (Gorno-Altai)

Type: c

Source: Tseitlin 1979 (Vereshchagin & Mel'nikova 1958)

Date: LP possibly IS 2 (upper) and 3 (Lower)

Fauna: *Anser anser*, *Tadorna ferruginea*, *Anas crecca*, *Anas platyrhynchos*, *Anas strepera*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetraogallus altaicus*, *Asio flammeus*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Notes: also reported as a Mousterian site, and in that case >30 KA BP

RO 41 Yeliseyevichi (Bryansk)

Type: o

Sources: Burchak-Abramovich 1975; Soffer 1985; Vereshchagin & Kuz'mina 1977 (Polikarpovich 1968)

Date: LP UP 14C=12,970–17,340 BP

Fauna: *Lagopus lagopus*, *Bubo bubo*, *Corvus corax*

Det.: Gureev, Gromov

Notes: also known as Eliseevich

RO 42 Yudinovo (Yudinovo)

Type: o

Source: Soffer 1985

Date: LP UP 14C=12,300–18,630 BP

Fauna: *Nyctea scandiaca*

RO 43 Kepshinskaya Peshchera (Krasnodar)

Alt.: 250

Type: c

Sources: Baryshnikov & Cherepanov 1985; Burchak-Abramovich 1974, 1975; Burchak-Abramovich & Lakerbai 1974; Lyubin et al. 1971

Date: LP Mousterian

Fauna: *Tetrao mlokosiewiczii*, *Tetraogallus caucasicus*, *Pyrhcorax graculus*

Det.: Burchak-Abramovich

Notes: also known as Kapshchin, Kepshchinskaya; *Tetraogallus caucasicus* also reported as *Tetraogallus* cf./aff *caucasicus* (Burchak-Abramovich 1974, 1975)

RO 44 Tashtyk I (Krasnoyarsk)

Source: Abramova et al. 1991

Layer: 1

Date: LP LG ca. 12,000 BP

Fauna: *Lagopus lagopus*

Layer: 1–2

Date: LP
Fauna: *Lagopus lagopus*
Layer: 3
Date: LP ca. 15,000 BP
Fauna: *Lagopus lagopus*

SAUDI ARABIA

SA 1 Abu Sabbau (Rub 'al Khali)

Type: o
Source: Lowe 1933b
Date: LP ?
Fauna: *Struthio* sp.
Det.: Lowe

SA 2 Qa'amiyat (Rub 'al Khali)

Type: o
Source: Lowe 1933b
Date: LP?
Fauna: *Struthio* sp.
Det.: Lowe

SA 3 Tuwairifa (Rub 'al Khali)

Type: o
Source: Lowe 1933b
Date: LP ?
Fauna: *Struthio* sp.
Det.: Lowe

SA 4 Umm Tina (Rub 'al Khali)

Type: o
Source: Lowe 1933b
Date: LP ?
Fauna: *Struthio* sp.
Det.: Lowe

SA 5 Umm al Qurun (Rub 'al Khali)

Type: o
Source: Lowe 1933b
Date: LP ?
Fauna: *Struthio* sp.
Det.: Lowe

SA 6 'Ain Sala (Rub 'al Khali)

Type: o

Source: Lowe 1933b

Date: LP ?

Fauna: *Struthio* sp.

Det.: Lowe

SERBIA

SR 1 Smolucka Pecina

Type: c

Source: Malez & Dimitrijevic 1990

Layer: 2/3

Date: LP/Hol

Fauna: *Accipiter nisus*, *Perdix perdix*, *Phasianus colchicus*, *Columba livia*, *Columba palumbus*, *Strix aluco*, *Corvus frugilegus*, *Corvus corone*, *Corvus monedula*, *Corvus* sp.

Layer: 3

Date: LP

Fauna: *Falco subbuteo*, *Lagopus mutus*, *Lagopus lagopus*, *Pyrhcorax pyrrhcorax*

Layer: 3z

Date: LP

Fauna: *Falco* sp., *Tetrao tetrix*, *Bonasa bonasia*, *Asio otus*, *Erithacus rubecula*, *Sturnus vulgaris*, *Nucifraga caryocatactes*, *Pica pica*, *Corvus* sp.

Layer: 3z/5

Date: LP

Fauna: *Falco tinnunculus*, *Tetrao tetrix*, *Perdix perdix*, *Strix aluco*, *Pica pica*, *Corvus* sp., *Pyrhcorax pyrrhcorax*

Layer: 4

Date: LP

Fauna: *Pyrhcorax pyrrhcorax*

Layer: 5

Date: LP

Fauna: *Perdix perdix*

Layer: unstratified

Date: LP/Hol

Fauna: *Anas crecca*, *Aquila chrysaetos*, *Gyps fulvus*, *Tetrao tetrix*, *Perdix perdix*, *Phasianus colchicus*, *Gallus gallus*, *Bubo bubo*, *Turdus merula*, *Corvus* sp., *Pyrhcorax pyrrhcorax*

Det.: Malez

SR 2 Visoka pecina

Type: c

Source: Malez 1988b



SERBIA (SR)

Date: LP

Fauna: *Lagopus mutus*, *Tetrao tetrax*, *Pica pica*, *Corvus monedula*

SLOVAKIA

SK 1 Baráthehy cave

Type: c

Source: Lambrecht 1912a

Date: LP ? "uralluvialen schichte"

Fauna: *Anas* sp.

SK 2 Dzeráva Skála

Alt.: 157

Type: c

Sources: Lambrecht 1913, 1933; Mottl 1938, 1941; Musil 1980b (Ehik 1913)

Layer: 3 (yellow layer)

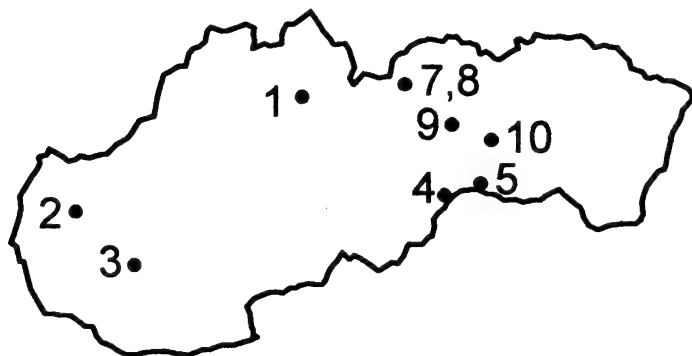
Date: LP LG Magdalenian

Fauna: *Falco tinnunculus*, *Falco rusticolus*, *Lagopus lagopus*, *Lagopus mutus*, *Surnia ulula*, *Asio flammeus*, *Strix uralensis*, *Turdus pilaris*, *Turdus philomelos*, *Corvus corax*

Layer: 4 (reddish-brown layer)

Date: LP Mid-Würmian "Protosolutreen" (=Szeletian)

Fauna: *Branta ruficollis*, *Anas penelope*, *Anas crecca*, *Anas acuta*, *Melanitta nigra*, *Butor lagopus*, *Falco tinnunculus*, *Falco rusticolus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrax*, *Crex crex*, *Rallus aquaticus*, *Tringa erythropus*, *Gallinago media*, *Strix uralensis*, *Surnia ulula*, *Asio flammeus*, *Turdus pilaris*, *Turdus philomelos*, *Corvus corax*, *Pyrrhocorax graculus*



SLOVAKIA (SR)

Layer: ?

Date: LP

Fauna: *Anser* sp., *Anser fabalis*, *Anas platyrhynchos*, *Anas strepera*, *Aythya fuligula*, *Mergus albellus*, *Circus cyaneus*, *Falco subbuteo*, *Falco columbarius*, *Perdix perdix*, *Porzana porzana*, *Vanellus vanellus*, *Calidris alpina*?, *Gallinago gallinago*, *Scolopax rusticola*, *Limosa limosa*, *Numenius phaeopus*, *Larus canus*, *Nyctea scandiaca*, *Alauda arvensis*, *Turdus viscivorus*, *Corvus* sp., *Nucifraga caryocatactes*

Det.: Lambrecht; Capek

Notes: also known as Pálffy Cave

SK 3 Galgóc

Type: o

Sources: Lambrecht 1915a, 1933

Date: LP (in loess)

Fauna: *Nucifraga caryocatactes*

Det.: Lambrecht

Notes: also known as Hlohovec

SK 4 Gombaszög

Type: c

Sources: Jánossy 1976c, 1981a

Date: MP Upper Biharian, Tarkőian

Fauna: *Falco tinnunculus atavus*, *Tetrao partium*

Det.: Jánossy

Notes: also known as Gombasek

SK 5 Mehesz

Type: c

Sources: Jánossy 1976c, 1978, 1979; Kretzoi 1975

Date: EP Lower Biharian, Templomhegy phase MNQ 20

Fauna: *Falco tinnunculus atavus*, *Tetrao praeurogallus*, *Tetrao partium*, *Pyrrhocorax aff graculus*

Det.: Jánossy

Stored: Geological Institute, Budapest

Notes: also known as Mihyska, Vcelare 1

SK 7 Novi I

Alt.: 2,000

Type: c

Sources: Lambrecht 1933; Wojcik 1966

Date: LP ?

Fauna: *Lagopus lagopus*, *Lagopus mutus*

SK 8 Novi III

Alt.: 2,000

Type: c

Sources: Fischer & Mauersberger 1989; Jánosy 1979; Lambrecht 1912a, 1933, Nehring 1880; Wojcik 1966

Date: LP ?

Fauna: *Anas crecca*, *Lagopus lagopus*, *Lagopus mutus*, *Scolopax* sp.?, cf. *Nyctea scandiaca*, *Asio flammeus*?, *Emberiza* sp.

Det.: Nehring, Jánosy

Notes: *Anas crecca* confirmed by Jánosy.

SK 9 Oruzsin

Type: c

Sources: Lambrecht 1912a, 1933

Fauna: *Falco columbarius*, *Lagopus mutus*, *Lagopus lagopus*, *Tetrao urogallus*, *Bonasa bonasia*, *Perdix perdix*, *Coturnix coturnix*, *Tringa totanus*, *Dendrocopos medius*, *Picus canus*, *Anthus spinoletta*, *Turdus philomelos*, *Turdus pilaris*, *Sylvia curruca*, *Coccothraustes coccothraustes*

Det.: Nehring; Capek

Notes: also known as O-Ruzsin, Oruzin and Antal-Höhle

SK 10 Porács

Type: c

Source: Jánosy 1976c

Date: LP Mid Würmian ?

Fauna: *Lagopus* sp.

Det.: Jánosy

SLOVENIA**SL 1 Betalov Spodmol**

Alt.: 537

Type: c

Sources: Malez 1973, 1984c, 1986b, 1988b; Musil 1980b; Rakovec 1959

Layer: III

Date: LP Mousterian ("Beginnendes Würm")

Fauna: *Lagopus mutus*

Layer: IV

Date: LP Mousterian (late) ("Interstadial W I/II")

Fauna: *Falco cherrug*

Layer: V

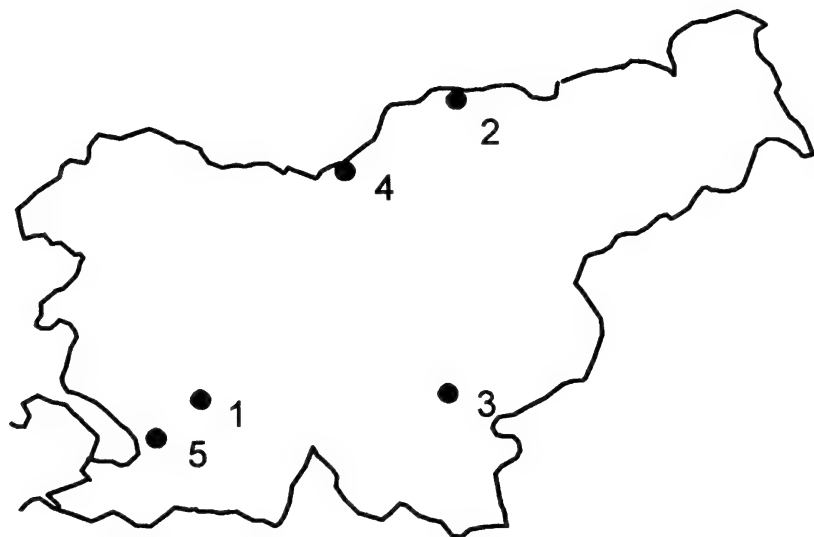
Date: LP Aurignacian ("Interstadial W I/II")

Fauna: *Turdus* cf. *viscivorus*, *Sturnus* cf. *vulgaris*

Layer: Va

Date: LP LG?

Fauna: *Cygnus* sp., *Hirundo rustica*



SLOVENIA (SL)

SL 2 Hude Luknje

Sources: Malez 1973, 1984c, 1986b

Date: LP

Fauna: *Lagopus mutus***SL 3 Lukenjska Jama**

Alt.: 180

Type: c

Source: Pohar 1983

Layer: 4

Date: LP LG Epigravettian 14C=12,580 BP (Bölling)

Fauna: *Aquila chrysaetos***SL 4 Potocka Zijalka**

Alt.: 2,200

Type: c

Sources: Malez 1972, 1973, 1983b, 1984c, 1986; Musil 1980b (Rakovec 1956)

Layer: Upper Culture Layer

Date: LP Aurignacian ("W I/II") Kalabaki II interstadial?

Fauna: *Lagopus mutus*

SL 5 Roska Spilja

Type: c

Sources: Malez 1973, 1983b, 1984c, 1988b

Layer: 8a

Date: LP

Fauna: *Lagopus mutus*, *Lagopus lagopus*

Layer: 8b

Date: LP

Fauna: *Lagopus mutus*, *Lagopus lagopus*, *Columba livia*

Det.: Malez

SPAIN**SP 1 Abric Romani (Barcelona)**

Type: c

Source: Villalta 1964

Date: LP Mousterian "Würm II-III" U/Th=39–60 KA BP, TL=48±3 (1,4 m depth), 56±3 (4 m depth) KA BP.

Fauna: *Anas platyrhynchos*, *Aquila* sp., *Alectoris barbara*, *Pyrhcorax graculus*

Det.: Villalta

SP 2 Aitzbitarte IV (Guipuzcoa)

Alt.: 220

Type: c

Sources: Eastham 1985, 1986; Elorza 1990

Date: LP LG Azilian

Fauna: *Anas platyrhynchos*, *Lagopus mutus*, *Alectoris rufa*, *Perdix perdix*, *Scolopax rusticola*, *Alauda arvensis*, *Hirundo rustica*, *Turdus viscivorus*, *Corvus corax*, *Corvus corone*, *Garrulus glandarius*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Date: LP LG Magdalenian-Azilian

Fauna: *Lagopus mutus*

Date: LP LG Final Magdalenian

Fauna: *Podiceps* sp., *Elanus caeruleus*, *Falco tinnunculus*, *Lagopus mutus*, *Perdix perdix*, *Columba livia/oenas*, *Alauda arvensis*, *Turdus viscivorus*, *Corvus corax*, *Corvus monedula*, *Garrulus glandarius*, *Pyrhcorax pyrrhcorax*, *Miliaria calandra*, *Emberiza citrinella*

Date: LP Magdalenian

Fauna: *Anas platyrhynchos*, *Gypaetus barbatus*, *Falco tinnunculus*, *Lagopus mutus*, *Perdix perdix*, *Columba livia/oenas*, *Strix aluco*, *Lullula arborea*, *Sturnus vulgaris*, *Garrulus glandarius*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Miliaria calandra*, *Emberiza citrinella*, *Emberiza melanocephala*

Date: LP Solutrean 14C=17,970±100 BP, applies to base of Middle Solutrean.

Fauna: *Tadorna tadorna*, *Anas querquedula*, *Mergus merganser*, *Elanus caeruleus*, *Falco subbuteo*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*,

Tringa totanus, *Scolopax rusticola*, *Columba livia/oenas*, *Strix aluco*, *Alauda arvensis*, *Turdus viscivorus*, *Sturnus vulgaris*, *Corvus corax*, *Pica pica*, *Garrulus glandarius*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Emberiza citrinella*, *Emberiza melanocephala*

Date: LP Aurignacian

Fauna: *Elanus caeruleus*, *Falco tinnunculus*, *Lagopus mutus*, *Columba livia/oenas*, *Streptopelia turtur*, *Alauda arvensis*, *Pyrrhonorax graculus*

Notes: Eastham also cites *Emberiza citrinella*

Det.: Eastham

SP 3 Altamira (Santander)

Alt.: 160

Type: c

Source: Straus date ?

Date: LP Solutrean

Fauna: *Gyps/Aegypius* sp., *Aquila* sp.?

SP 4 Amalda (Guipuzcoa)

Type: c

Source: Eastham 1989

Layer: IV

Date: LP Solutrean "Würm IV" 14C=16,090–17,580 BP

Fauna: *Anas platyrhynchos*, *Falco peregrinus*, *Falco tinnunculus*, *Columba livia*, *Strix aluco*, *Galerida cristata*, *Oenanthe oenanthe*, *Turdus merula*, *Corvus corax*, *Pica pica*, *Pyrrhonorax pyrrhonorax*, *Miliaria calandra*

Layer: V

Date: LP Final Perigordian/Protomagdalenian "Würm III" 14C=19,000±340 (base) 17,880±390 (middle) BP

Fauna: *Anas platyrhynchos*, *Falco peregrinus*, *Falco tinnunculus*, *Columba livia*, *Miliaria calandra*, *Corvus corax*, *Pica pica*, *Pyrrhonorax pyrrhonorax*

Layer: VI

Date: LP Perigordien V "Würm III" 14C=27,400±1,000 BP

Fauna: *Anas platyrhynchos*, *Accipiter gentilis*, *Falco peregrinus*, *Falco tinnunculus*, *Perdix perdix*, *Bubo bubo*, *Asio otus*, *Asio flammeus*, *Turdus merula*, *Turdus viscivorus*, *Garrulus glandarius*, *Corvus corax*, *Miliaria calandra*

Layer: VII

Date: LP Mousterian "Würm I/II"

Fauna: *Anas platyrhynchos*, *Aquila chrysaetos*, *Galerida cristata*, *Turdus philomelos*, *Turdus viscivorus*, *Emberiza citrinella*, *Corvus corone*, *Miliaria calandra*

Det.: Eastham

SP 5 Ambrona (Soria)

Type: o

Sources: Jánossy 1982a, 1983a; Sánchez 1990 (Aguirre & Fuentes 1969)

Date: MP "Late Biharian (Verteszöllös/Uppony)-Early Oldenburgian", "Late Cromerian"

Fauna: *Anser anser*, *Tadorna ferruginea*, *Anas* cf. *crecca*, *Gallus* cf. *aesculapi*, *Fulica* cf. *atra*, *Pterocles* sp.

Det.: Sánchez-Marco; Jánosy; Fuentes

Notes: Jánosy ascribed goose to *Anser subanser*, but Sánchez considers this a synonym of *A. anser*

SP 6 Ambrona/Torralba (Soria)

Type: o

Source: Sánchez 1990

Date: MP Acheulean

Fauna: *Anas strepera*, *Vanellus vanellus*

Det.: Sánchez-Marco

Notes: birds only known to be from either Ambrona or Torralba

SP 7 Arbreda (Gerona)

Alt.: 200

Type: c

Sources: Vilette 1983; Garcia i Petit 1995a

Layer: 11–12

Date: LP LG Epipaleolithic

Fauna: *Anas platyrhynchos*, *Anas penelope*, *Perdix perdix*, *Columba palumbus*, cf. *Turdus merula*, *Pyrhcorax graculus*

Layer: 13–16

Date: LP Solutrean

Fauna: *Anas platyrhynchos*, cf. *Falco subbuteo*, *Falco naumanni*, *Falco tinnunculus*, *Alectoris graeca*, *Perdix perdix*, *Columba oenas*, *Turdus torquatus*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Layer: 17

Date: LP Transition Gravettian/Solutrean

Fauna: *Falco tinnunculus*, *Perdix perdix*, *Columba oenas*, *Pyrhcorax graculus*, *Pyrhcorax pyrrhcorax*

Layer: 18–22

Date: LP Gravettian

Fauna: *Aythya nyroca*, *Alectoris graeca*, *Perdix perdix*, cf. *Limosa limosa*, *Columba oenas*, *Athene noctua*, *Turdus torquatus*, *Pyrhcorax graculus*, *Pyrhcorax pyrrhcorax*, *Corvus corax*

Layer: 23–28

Date: LP Aurignacian, earliest UP dated to $37,700 \pm 1,000$ – $39,900 \pm 1,300$ BP

Fauna: *Podiceps auritus/nigricollis*, *Branta bernicla*, *Anas platyrhynchos*, *Anas crecca*, *Anas querquedula*, cf. *Falco subbuteo*, *Alectoris graeca*, *Perdix perdix*, *Coturnix coturnix*, *Charadrius morinellus*, cf. *Limosa limosa*, *Columba oenas*, *Asio flammeus*, *Athene noctua*, cf. *Galerida cristata*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Corvus corax*

Det.: Vilette

Date: LP Mousterian

Fauna: *Anser/Branta* sp., *Anas* sp., *Anas platyrhynchos*, *Accipiter gentilis*, *Falco* sp., *Falco naumanni*, *Falco tinnunculus*, *Falco vespertinus*, *Falco subbuteo*, *Alectoris* sp., *Alectoris graeca*, *Alectoris rufa*, *Perdix perdix*, *Coturnix coturnix*, *Porzana porzana*, *Calidris canutus*, *Chlidonias* cf. *nigra*, *Columba livia*, *Columba oenas*, *Athene noctua*, cf. *Caprimulgus* sp., *Coracias garrula*, *Picus viridis*, *Turdus viscivorus*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*, *Corvus monedula*, *Corvus corone*

Date: LP Basal Aurignacian (upper level 14C=25,830±400 BP)

Fauna: *Anser/Branta* sp., *Anas* sp., *Anas platyrhynchos*, *Aquila* cf. *chrysaetos*, *Falco* sp., *Falco naumanni*, *Falco columbarius*, *Falco subbuteo*, *Perdix perdix*, *Coturnix coturnix*, *Porzana porzana*, *Tetrax tetrax*, *Gallinago gallinago*, *Columba livia/oenas*, *Columba oenas*, *Bubo bubo*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*, *Corvus monedula*

Date: LP Evolved Aurignacian 14C=22,130±220 BP

Fauna: *Anser/Branta* sp., *Anas* sp., *Falco* sp., *Falco naumanni*, *Falco tinnunculus*, *Falco vespertinus*, *Alectoris* sp., *Alectoris graeca*, *Alectoris rufa*, *Alectoris barbara*, *Perdix perdix*, *Coturnix coturnix*, *Grus grus*, cf. *Charadrius vociferus*, *Gallinago gallinago*, *Gallinago media*, *Larus* cf. *melanocephalus*, *Columba livia/oenas*, *Columba oenas*, *Columba palumbus*, *Otus scops*, *Athene noctua*, *Turdus viscivorus*, *Garrulus glandarius*, *Pica pica*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*, *Corvus monedula*

Date: LP Lower Gravettian

Fauna: *Anas* sp., *Anas platyrhynchos*, *Falco* sp., *Falco naumanni*, *Falco tinnunculus*, *Falco vespertinus*, *Lagopus* sp., *Alectoris* sp., *Alectoris graeca/rufa*, *Alectoris barbara*, *Perdix perdix*, *Coturnix coturnix*, *Porzana porzana*, *Tetrax tetrax*, *Burhinus oedicephalus*, *Gallinago gallinago*, *Columba livia/oenas*, *Strix aluco*, *Pica pica*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*, *Corvus monedula*, *Corvus corone/frugilegus*

Date: LP Upper Gravettian 14C=20,130±220 BP

Fauna: *Falco subbuteo*, *Coturnix coturnix*, *Pyrhcorax* sp., *Pyrhcorax graculus*, *Corvus monedula*

Date: LP Solutrean, Lower level 14C=17,720±290 BP

Fauna: *Falco* sp., *Falco tinnunculus*, *Alectoris* sp., *Alectoris rufa*, *Coturnix coturnix*, *Pica pica*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*, *Corvus monedula*

Date: LP Solutrean, Upper level 14C=17,320±290 BP

Fauna: *Podiceps cristatus/griseus*, *Falco vespertinus*, *Falco subbuteo*, *Coturnix coturnix*, *Grus grus*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*, *Corvus monedula*

Date: LP Solutrean with Mediterranean-type shouldered points

Fauna: *Anser/Branta* sp., *Anas* sp., *Accipiter gentilis*, *Pyrhcorax* sp., *Pyrhcorax pyrhcorax*

Date: LP Post-Solutrean

Fauna: *Anser/Branta* sp., *Falco tinnunculus*, *Alectoris* sp., *Alectoris graeca*, *Coturnix coturnix*, *Tetrax tetrax*, *Otus tarda*, *Columba livia/oenas*, *Pyrhcorax* sp., *Pyrhcorax pyrhcorax*, *Corvus monedula*

Det: Garcia i Petit

SP 8 Arbreda II (Gerona)

Type: c

Source: Vilette 1983

Layer: 1,4/1,2

Date: LP UP

Fauna: *Alectoris graeca*, *Coturnix coturnix*, *Turdus torquatus*, *Pyrhcorax graculus*

Layer: 1,6/1,4

Date: LP UP

Fauna: *Falco tinnunculus*, *Alectoris graeca*, cf. *Turdus merula*, *Pinicola enucleator*,
Pyrhcorax pyrrhcorax, *Pyrhcorax graculus*

Layer: 1,8/1,6

Date: LP UP

Fauna: *Alectoris graeca*, *Pyrhcorax graculus*

Layer: 2/1,8

Date: LP UP

Fauna: *Alectoris graeca*, *Coturnix coturnix*, *Asio flammeus*, *Pyrhcorax pyrrhcorax*,
Pyrhcorax graculus

Det.: Vilette

SP 9 Aridos 1 (Madrid)

Type: o

Sources: Mourer-Chauviré 1980c; Santonja Gómez et al. 1978

Date: MP Acheulean, Late MP, IS 9?

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Anas clypeata*, *Accipiter nisus*, *Alectoris graeca/rufa*, *Perdix palaeoperdix*, *Porzana porzana*, *Columba oenas*, *Columba palumbus*, *Strix aluco*, *Upupa epops*, *Picus viridis*, *Dendrocopos major submajor*, *Galerida cristata*, *Hirundo rustica*, *Turdus pilaris*, *Turdus iliacus*, *Parus cristatus*, *Coccothraustes coccothraustes*, *Corvus monedula*

Det.: Mourer-Chauviré

SP 10 Atapuerca (La Galería) (Burgos)

Type: c

Sources: Sánchez-Marco 1987a,b, 1995a

Layer: SU 0

Date: MP Upper Middle Acheulean (U/Th 118 000→350,000 BP) MNQ 24

Fauna: *Perdix palaeoperdix*, *Pyrhcorax pyrrhcorax*, *Corvus antecorax*

Layer: SU 1

Date: MP Upper Middle Acheulean (U/Th 118,000→350,000 BP) MNQ 24

Fauna: *Perdix palaeoperdix*, *Pyrhcorax pyrrhcorax*, *Corvus antecorax*

Layer: SU 1/2

Date: MP Upper Middle Acheulean (U/Th 118,000→350,000 BP) MNQ 24

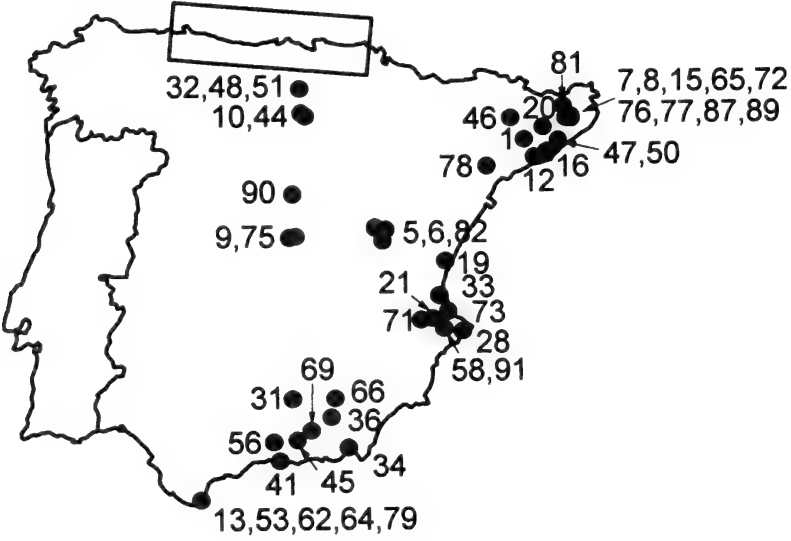
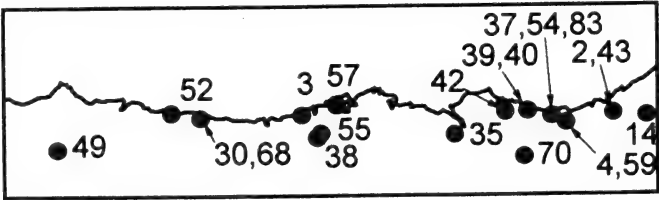
Fauna: *Corvus antecorax*

Layer: SU 2

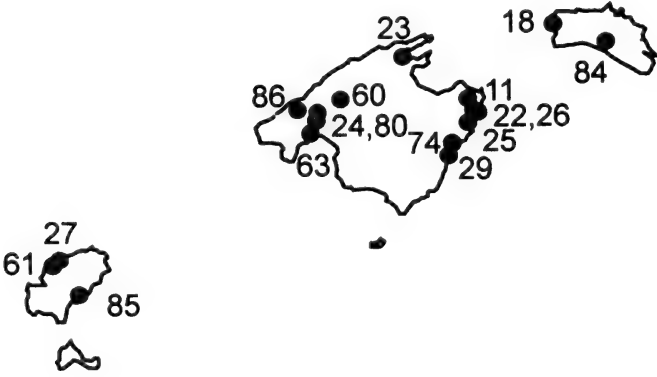
Date: MP Upper Middle Acheulean (U/Th 118,000→350,000 BP) MNQ 24

Fauna: *Corvus antecorax*

Layer: SU 3



Not closely localized site: 92



SPAIN (SP)

[For map of sites in the Canaries see p. 422.]

Date: MP Upper Middle Acheulean (U/Th 118,000→350,000 BP) MNQ 24

Fauna: *Perdix palaeoperdix*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Corvus antecorax*

Layer: SU 4

Date: MP Upper Middle Acheulean (U/Th 118,000→350,000 BP) MNQ 24

Fauna: *Corvus antecorax*

Layer: SU 5

Date: MP Upper Middle Acheulean (U/Th 118,000→350,000 BP) MNQ 24

Fauna: *Columba* sp., *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Corvus antecorax*

Layer: SU 5/6

Date: MP Upper Middle Acheulean (U/Th 118,000→350,000 BP) MNQ 24

Fauna: *Tringa totanus*, *Lullula arborea*, *Alauda arvensis*

Layer: SU 6

Date: MP Upper Middle Acheulean (U/Th 118,000→350,000 BP) MNQ 24

Fauna: *Falco tinnunculus*, *Perdix palaeoperdix*, *Otis tarda*, *Limosa limosa*, *Gallinago gallinago*, *Lullula arborea*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Corvus antecorax*

Layer: SU 6/7

Date: MP Upper Middle Acheulean (U/Th 118,000→350,000 BP) MNQ 24

Fauna: *Gallinago media*, *Galerida cristata*, *Turdus merula*

Layer: SU 7/8

Date: MP Upper Middle Acheulean (U/Th 118,000→350,000 BP) MNQ 24

Fauna: *Perdix palaeoperdix*, *Corvus antecorax*

Layer: SU 8

Date: MP Upper Middle Acheulean (U/Th 118,000→350,000 BP) MNQ 24

Fauna: *Pluvialis apricaria*, *Calidris alpina*, *Tringa totanus*, *Gallinago gallinago*, *Gallinago media*, *Sterna albifrons*, *Columba* sp., *Galerida cristata*, *Lullula arborea*, *Alauda arvensis*, *Saxicola rubetra*, *Turdus viscivorus*, *Turdus* sp., *Pyrhcorax pyrrhcorax*, *Corvus antecorax*, *Fringilla coelebs*, *Emberiza citrinella*

Layer: SU 9

Date: MP Upper Middle Acheulean (U/Th 118,000→350,000 BP), MNQ 24, probably >200 KA BP

Fauna: *Perdix palaeoperdix*, *Pluvialis apricaria*, *Tringa totanus*, *Gallinago gallinago*, *Alauda arvensis*, *Pyrhcorax graculus*, *Corvus antecorax*

Layer: TG 11

Date: MP IS 7 Upper Middle Acheulean (ESR 256±33 KA BP), MNQ 24

Fauna: *Anas crecca*, *Anas platyrhynchos*, *Anas* cf. *querquedula*, *Falco tinnunculus*, *Perdix palaeoperdix*, *Coturnix coturnix*, *Porzana* cf. *pusilla*, *Otis tarda*, *Vanellus vanellus*, *Pluvialis apricaria*, *Limosa limosa*, *Tringa erythropus*, *Tringa totanus*, *Gallinago media*, *Gallinago gallinago*, *Calidris alpina*, *Sterna albifrons*, *Columba livia/oenas*, *Galerida cristata*, *Lullula arborea*, *Alauda arvensis*, *Turdus merula*, *Turdus pilaris/viscivorus*, *Turdus viscivorus*, *Sturnus* sp., *Pica pica*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Corvus monedula*, *Corvus antecorax*, *Fringilla coelebs*, *Emberiza citrinella*

Det.: Sánchez-Marco

SP 11 Avenc de na Corna (Mallorca)

Type: c

Sources: Alcover et al. 1981; Mourer-Chauviré et al. 1975, 1977

Date: LP

Fauna: *Grus primigenia*, *Scolopax rusticola*, *Pyrhcorax graculus***SP 12 Avenc del Gegant (Barcelona)**

Type: c

Source: Villalta 1964

Date: LP Early LP IS 5?

Fauna: *Aquila chrysaetos*, *Turdus merula*

Det.: Villalta

Notes: found associated with *Rhinoceros mercki***SP 13 Beefsteak Cave (Gibraltar)**

Type: c

Sources: Hernandez 1993; Wolf 1938–41

Date: LP/Hol

Fauna: *Falco tinnunculus*, *Larus* sp., *Uria aalge***SP 14 Berroberia (Navarra)**

Type: c

Sources: Altuna 1972; Diez Fernandez-Lomana et al. 1995; Villalta 1964

Date: LP Magdalenian (14C=11,600–13,300 BP)

Fauna: *Anas platyrhynchos*, *Clangula hyemalis*, Accipitriformes sp., *Lagopus mutus*, *Pyrhcorax graculus*

Det.: Sánchez-Marco; Villalta

SP 15 Bora Gran d'en Carreras (Gerona)

Type: c

Sources: Vilette 1983; Garcia i Petit 1995

Date: LP LG Magdalenien superieur 14C=11,470±500 BP

Fauna: *Perdix perdix*, *Otis tarda*, *Columba oenas*, *Pyrhcorax graculus*

Det.: Vilette; Garcia i Petit

Notes: also known as La Bora Gran

SP 16 Brechas de la Cantera de l'Altissen (Barcelona)

Type: c

Source: Villalta 1964

Date: LP Early LP IS 5?

Fauna: *Aquila chrysaetos*, *Columba oenas*, *Columba livia*, *Strix aluco*, *Athene noctua*, *Carduelis flammea*, *Fringilla coelebs*

Det.: Villalta

Notes: also known as Castelldefels

SP 17 Bujero del Silo (La Gomera, Canarias)

Type: c

Source: Jaume et al. 1993

Date: LP, probably partly Holocene

Fauna: *Buteo buteo*, *Neophron percnopterus*, *Falco tinnunculus*, *Falco* sp., *Coturnix gomerae*, *Columba junoniae*, *Tyto alba gracilirostris*, *Turdus* sp., *Pyrhcorax pyrrhcorax*, *Corvus corax*, *Carduelis chloris*

Det.: Alcover & McMinn

Notes: *Neophron percnopterus* and *Carduelis chloris* probably of Holocene age**SP 18 Cala Blanes (Menorca)**

Type: c

Sources: Alcover et al. 1981; Reumer 1981

Date: LP ?

Fauna: *Pyrhcorax pyrrhcorax*

Det.: Weesie

Notes: also known as Cala En Blanes

SP 19 Casablanca I (Castello)

Type: c

Sources: Mourer-Chauviré & Sánchez-Marco 1988; Sánchez-Marco 1996

Date: LPI/EP MN17/18 1.6–2.7 MA “Villafranchien moyen”

Fauna: *Geronticus eremita*, *Tyto balearica*

Det.: Mourer-Chauviré; Sánchez-Marco

Notes: also known as Almenara I

SP 20 Cingle Vermell (Barcelona)

Alt.: 560

Type: c

Source: Vilette 1983

Layer: unstratified

Date: LP LG 14C=11,620±140 BP

Fauna: *Alectoris* cf. *barbara*, *Alectoris* cf. *graeca*, *Perdix perdix*, cf. *Limosa limosa*, *Columba livia*, *Columba palumbus*, *Anthus pratensis*, *Turdus torquatus*, *Corvus monedula*, *Petronia petronia*

Layer: 9–10 Date: LP LG 14C=11620±140 BP

Fauna: *Anser* cf. *anser*, *Falco tinnunculus*, *Alectoris barbara*, *Perdix perdix*, *Coturnix coturnix*, *Columba livia*, *Apus apus*, *Apus melba*, *Melanocorypha calandra*, *Monticola saxatilis*, *Turdus torquatus*, *Turdus iliacus*, *Turdus viscivorus*, *Pyrhcorax pyrrhcorax*, *Corvus monedula*

Det.: Vilette

SP 21 Cova Negra DeBellus (Valencia)

Alt.: 200

Type: c

Sources: Eastham 1988, 1989; Villalta 1964

Date: LP probably Mousterian

Fauna: *Upupa epops*, *Apus* sp., *Pyrhcorax graculus*

Det.: Vicente

Date: LP Würm II, Mousterian

Fauna: *Phalacrocorax aristotelis*, *Scolopax rusticola*, *Gallinago* sp., *Tyto alba*, *Strix* cf. *intermedia*, *Bubo bubo* cf. *davidi*, *Columba livia*, *Apus melba*, *Turdus* spp., *Corvus* sp., *Lanius* sp

Notes: includes level III & V

Date: LP Würm I, I/II & II, Mousterian

Fauna: Anatidae, *Accipiter* sp., *Coturnix coturnix*, *Columba livia*, *Apus apus*, *Tyto alba*, *Aegolius funereus*, *Melanocorypha calandra*, *Monticola solitarius*, *Turdus* sp., *Lanius* sp., *Garrulus glandarius*, *Pica pica*, *Corvus corone*, *Pyrhcorax* sp., Emberizidae

Date: LP Würm I/II Mousterian

Fauna: Anatidae, *Columba livia*, *Apus melba*, *Pyrhcorax* sp.

Date: LP Würm I, Mousterian

Fauna: *Anas platyrhynchos*, *Coturnix coturnix*, *Apus melba*, *Columba livia*, Strigidae sp., *Turdus* spp., *Pyrhcorax* sp.

Det.: Eastham

SP 22 Cova Nova (Mallorca)

Type: c

Sources: Florit & Alcover 1987; McMinn & Alcover 1992

Date: LP

Fauna: *Calonectris diomedea*, *Phalacrocorax aristotelis*, *Anas crecca*, *Aquila chrysaetos*, *Accipiter nisus*, *Falco eleonora*, *Falco* cf. *naumanni*, *Falco tinnunculus*, *Scolopax rusticola*, *Alca torda*, *Columba livia*, *Apus melba*, *Tyto alba*, *Upupa epops*, *Melanocorypha calandra*, *Hirundo rupestris*, *Lanius minor*, *Lanius excubitor*, *Prunella collaris*, *Prunella modularis*, *Erithacus rubecula*, *Turdus iliacus/philomelos*, *Turdus merula*, *Turdus viscivorus*, *Turdus* sp., *Loxia curvirostra*, *Montifringilla nivalis*, *Fringilla* sp., *Pyrhula pyrrhula*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Corvus corone*, *Emberiza cia/hortulana*

Det.: Alcover; McMinn

SP 23 Cova de Llenaire (Mallorca)

Type: c

Sources: Alcover et al. 1981; Mourer-Chauviré et al. 1977

Date: LP

Fauna: *Aquila chrysaetos*, *Scolopax rusticola*, *Turdus merula*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

SP 24 Cova de Son Maiol (Mallorca)

Type: c

Sources: Alcover et al. 1981; Mourer-Chauviré et al. 1977

Date: LP

Fauna: *Accipiter nisus*, *Corvus monedula*, *Turdus* cf. *viscivorus*, *Pica pica*

Notes: also known as Cova de Son Mayol

SP 25 Cova de Davall des Mirador de sa Costa des Pins (Mallorca)

Type: c

Sources: Alcover et al. 1981; Mourer-Chauviré et al. 1977

Date: LP

Fauna: *Phalacrocorax aristotelis*

SP 26 Cova de s'Ermita (Mallorca)

Type: c

Source: Alcover et al. 1981

Date: LP

Fauna: *Turdus viscivorus*

Notes: also known as Coves d'Arta

SP 27 Cova den Jaume Orat (Eivissa)

Alt.: 100

Type: c

Source: McMinn, Altaba & Alcover 1993

Date: LP

Fauna: *Calonectris diomedea*, *Puffinus puffinus mauretanicus*, *Hydrobates pelagicus*,
Anser cf. *erythropus*, *Coturnix* cf. *coturnix*, *Columba palumbus*, *Turdus* spp.

Det.: Alcover, McMinn

SP 28 Cova des Cendres (Alicante)

Type: c

Source: Hernandez 1993 (Badal et al. 1991)

Layer: I

Date: LP LG Upper Magdalenian

Fauna: *Coturnix coturnix*, *Calidris ferruginea*, *Columba* sp., *Pyrhcorax* sp.

Layer: II

Date: LP LG Upper Magdalenian

Fauna: *Falco tinnunculus*, *Falco columbarius*, *Haematopus ostralegus*, *Columba* sp.,
Lullula arborea, *Turdus* sp., *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Layer: III

Date: LP LG Upper Magdalenian 14C=12,650±80 BP

Fauna: *Aquila chrysaetos*, *Accipiter nisus*, *Alectoris* sp., *Coturnix coturnix*, *Columba* sp.,
Bubo bubo, *Apus apus*, *Turdus* sp., *Turdus viscivorus*, *Turdus merula*, *Pica pica*,
Pyrhcorax pyrrhcorax, *Pyrhcorax graculus*, *Corvus monedula*, *Corvus corone*

SP 29 Cova des Moro (Mallorca)

Type: c

Source: Alcover et al. 1981

Date: LP

Fauna: *Columba* cf. *livia*, *Turdus pilaris*, *Pyrhcorax graculus*

SP 30 Cueto de la Mina (Asturias)

Type: c

Source: Hernandez *in litt.*

Date: LP Magdalenian 14C=11,630±120, 11,650±190 BP

Fauna: Anatidae, *Aquila* cf. *chrysaetos*, *Uria aalge*, *Asio flammeus*

Det.: Hernandez

SP 31 Cueva Horá (Granada)

Alt.: 1,000

Type: c

Source: Fuentes & Meijide 1970

Layer: 0

Date: LP ? Epipalaeolithic

Fauna: *Coturnix coturnix*, *Alectoris rufa*, *Columba palumbus*, *Columba livia*, *Tyto alba*, *Athene noctua*, *Corvus corax*, *Corvus monedula*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Layer: 0, 12

Date: LP ? Epipalaeolithic

Fauna: *Gallus* sp., *Coturnix coturnix*, *Alectoris rufa*, *Columba palumbus*, *Columba livia*, *Tyto alba*, *Athene noctua*, *Corvus corax*, *Corvus monedula*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Layer: I

Date: LP ? Epipalaeolithic

Fauna: *Coturnix coturnix*, *Alectoris rufa*, *Columba palumbus*, *Vanellus vanellus*, *Columba livia*, *Tyto alba*, *Corvus corax*, *Corvus monedula*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Layer: IV

Date: LP ? Epipalaeolithic

Fauna: *Coturnix coturnix*, *Alectoris rufa*, *Columba palumbus*, *Columba livia*, *Corvus monedula*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Layer: IV-V

Date: LP ? Epipalaeolithic

Fauna: *Coturnix coturnix*, *Alectoris rufa*, *Columba livia*, *Turdus merula*, *Turdus philomelos*, *Corvus monedula*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Layer: V

Date: LP ? Epipalaeolithic

Fauna: *Coturnix coturnix*, *Alectoris rufa*, *Tyto alba*, *Turdus philomelos*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Layer: VI

Date: LP ? Epipalaeolithic

Fauna: *Coturnix coturnix*, *Alectoris rufa*, *Columba palumbus*, *Columba livia*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Layer: VII

Date: LP ? Epipalaeolithic

Fauna: *Alectoris rufa*, *Columba livia*, *Corvus monedula*, *Pyrrhonorax pyrrhonorax*,
Pyrrhonorax graculus

Layer: VIII

Date: LP ? Epipalaeolithic

Fauna: *Coturnix coturnix*, *Alectoris rufa*, *Columba livia*, *Pyrrhonorax pyrrhonorax*,
Pyrrhonorax graculus

Det.: Fuentes

SP 32 Cueva Juan Berchmans (Burgos)

Type: c

Source: Wolf 1938–41

Date: LP

Fauna: *Corvus monedula*

SP 33 Cueva Volcán (Valencia)

Type: c

Sources: Davidson 1989; Eastham 1986, 1988

Layer ?

Date: LP UP ca. 15,000–21,000 BP

Fauna: *Apus apus*, *Hirundo rustica*

Layer: 1–4

Date: LP UP ca. 15000–21000 BP

Fauna: *Anas platyrhynchos*, *Netta rufina*, *Anas querquedula*, *Falco rusticolus*, *Uria aalge*

Layer: 5

Date: LP UP ca. 15,000–21,000 BP

Fauna: *Anas crecca*, *Falco tinnunculus*, *Falco rusticolus*

Layer: 19–28

Date: LP UP ca. 15,000–21,000 BP

Fauna: *Anas crecca*, *Anas querquedula*, *Falco tinnunculus*, *Alectoris rufa*, *Columba livia*, *Picus viridis*, *Galerida theklae*, *Turdus merula*, *Turdus viscivorus*, *Sturnus cf. unicolor*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Passer sp.*

Layer: 4–34

Date: LP UP ca. 15,000–21,000 BP

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Anas acuta*, *Netta rufina*, *Falco tinnunculus*, *Alectoris rufa*, *Coturnix coturnix*, *Columba livia*, *Apus apus*, *Sturnus cf. unicolor*, *Corvus corone*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Passer sp.*, *Emberiza sp.*

Det.: Eastham

Notes: also known as Volcán de Faro

SP 34 Cueva De Ambrosio (Almería)

Type: c

Source: Sánchez-Marco 1988

Layer: I

Date: LP Solutrean

Fauna: *Falco naumanni*, *Alectoris rufa*, *Columba livia*, *Athene noctua*, cf. *Turdus pilaris*, *Carduelis cannabina*, *Garrulus glandarius*, *Pyrhcorax graculus*

Layer: II

Date: LP Solutrean

Fauna: *Falco naumanni*, *Alectoris rufa*, *Columba livia*, *Petronia petronia*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Layer: III

Date: LP Solutrean

Fauna: *Hirundo rustica*, *Prunella collaris*, *Pyrhcorax graculus*

Layer: IV

Date: LP Solutrean

Fauna: *Pyrhcorax graculus*

Layer: V

Date: LP Solutrean

Fauna: *Pyrhcorax pyrrhcorax*

Layer: VI

Date: LP Solutrean

Fauna: *Columba livia*

Layer: VII

Date: LP Solutrean

Fauna: *Columba livia*

Det.: Sánchez-Marco

SP 35 Cueva de Arenaza (Vizcaya)

Type: c

Source: Elorza 1990

Date: LP LG Azilian 14C=10,300±180 BP

Fauna: *Buteo buteo*, *Tyto alba*

SP 36 Cueva de Campana de Piñar (Granada)

Alt.: 1,020

Type: c

Sources: Koby & Spahni 1956; Villalta 1964

Date: LP Aurignacian

Fauna: *Turdus viscivorus*, *Turdus merula*, *Pyrhcorax graculus*

Det.: Koby

Notes: also known as Campaña de Piñar

SP 37 Cueva de Ermitia (Guipuzcoa)

Alt.: 100

Type: c

Sources: Altuna 1972; Elorza 1990, 1993; Hernandez 1993; Villalta 1964 (Aranzadi & Barandiarán 1928)

Date: LP LG Azilian

Fauna: *Lagopus mutus*, *Rissa tridactyla*/*Larus canus*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*

Det.: Elorza

Date: LP LG Magdalenian IV

Fauna: *Aquila chrysaetos*, *Lagopus* sp., *Turdus viscivorus*?, *Turdus* sp., *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*,

Date: LP Solutrean

Fauna: *Aythya fuligula*, *Aquila chrysaetos*, *Lagopus lagopus*, *Lagopus* sp., *Nyctea scandiaca*, *Asio flammeus*, *Hirundo rustica*, *Turdus merula*, *Turdus philomelos*, *Turdus* sp., *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*

Det.: Elorza; Gaillard

Notes: Gaillard's determinations revised by Elorza.

SP 38 Cueva de Hornos de la Peña (Santander)

Type: c

Sources: Altuna 1972; Hernandez 1993; Lambrecht 1933; Villalta 1964 (Harlé 1909; Quiros 1982)

Date: LP UP Aurignacian/Solutrean

Fauna: *Aquila* sp., *Gypaetus barbatus*, *Lagopus* sp., *Bonasa bonasia*, *Corvus monedula*, *Pyrrhonorax* sp.

Date: LP UP Aurignacian

Fauna: *Aquila* sp., *Bonasa bonasia*

Date: LP Mousterian-Magdalenian

Fauna: *Lagopus mutus*, *Perdix perdix*, *Corvus monedula*, *Pyrrhonorax pyrrhonorax*

Det.: Newton

SP 39 Cueva de Laminak II (Vizcaya)

Type: c

Source: Hernandez 1993

Date: LP LG

Fauna: *Anser anser/fabalis*, *Tadorna tadorna*, *Anas strepera*, *Anas crecca/querquedula*, *Anas platyrhynchos*, *Aythya ferina*, *Aythya fuligula*, *Aythya* spp., *Mergus albellus*, *Mergus serrator*, *Aquila* sp., *Falco tinnunculus*, *Falco* spp., *Tetrao urogallus*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Pluvialis* sp., *Vanellus vanellus*, *Calidris maritima*, *Numenius phaeopus*, *Numenius* spp., *Scolopax rusticola*, *Chlidonias niger*, *Alle alle*, *Columba* sp., *Bubo bubo*, *Asio flammeus*

Det.: Hernandez

SP 40 Cueva de Lumentxa (Vizcaya)

Type: c

Sources: Altuna 1972; Villalta 1964 (Aranzadi & Barandarián 1935b)

Layer: IV

Date: LP LG Magdalenian final

Fauna: *Bubo bubo*

Layer: V

Date: LP LG Magdalenian superior

Fauna: *Turdus philomelos*

Layer: VI

Date: LP LG Magdalenian III

Fauna: *Lagopus mutus*, *Pyrhocorax pyrrhocorax*

Det.: Gaillard

SP 41 Cueva de Nerja (Malaga)

Alt.: 158

Type: c

Sources: Eastham 1986a, 1988, 1989; Hernandez-Carrasquilla 1993, 1995; Mourer-Chauviré & Antunes 1991; Tyrberg & Hernandez-Carrasquilla 1995 (Boessneck & von den Driesch 1980)

Layer: NT79

Date: LP/Hol Epipalaeolithic 14C=8,770±140–13,330±270 BP

Fauna: *Calonectris diomedea*, *Sula bassana*, *Tadorna tadorna*, *Aythya ferina?*, *Melanitta nigra*, *Aquila adalberti*, *Alectoris rufa*, *Grus grus*, *Fulica atra*, *Larus cachinnans/fuscus*, *Larus marinus*, *Pinguinus impennis*, *Columba livia*, *Sturnus sp.*, *Pyrhocorax pyrrhocorax*

Det.: Boessneck & von den Driesch

Layer: NM80A layer 6

Date: LP/Hol Epipalaeolithic 14C=8,770±140–13,330±270 BP

Fauna: *Sula bassana*, *Ardea cinerea*, *Stercorarius skua*

Det.: Hernandez

Layer: NT82 layer 12

Date: LP/Hol Epipalaeolithic 14C=8,770±140–13,330±270 BP

Fauna: *Sula bassana*, *Phalacrocorax aristotelis*, *Anas platyrhynchos*, *Larus cf. fuscus*, *Uria aalge*, *Columba sp.*

Det.: Hernandez

Layer: 13

Date: LP Epipalaeolithic

Fauna: *Puffinus griseus*, *Sula bassana*, *Anas platyrhynchos*, *Accipiter/Aquila sp.*, *Falco subbuteo*, *Coturnix coturnix*, *Larus ridibundus*, *Uria aalge*, *Columba livia*, *Hirundo rustica*, *Turdus merula*, *Monticola solitarius*, *Luscinia megarhynchos*, *Pyrhocorax pyrrhocorax*

Det.: Eastham

Layer: NM79

Date: LP UP/Epipalaeolithic 14C=8770±140–13330±270 BP

Fauna: *Puffinus gravis*, *Calonectris diomedea*, *Sula bassana*, *Tadorna tadorna*, *Larus canus/Rissa tridactyla*, *Alca torda*, *Columba livia*, *Bubo bubo*

Det.: Boessneck & von den Driesch

Layer: NM80A layer 8

Date: LP UP 14C=13,330±270–16,520±540 BP

Fauna: *Calonectris diomedea*, *Tadorna sp.*, *Aythya nyroca*, *Buteo buteo*, *Fulica atra*, *Grus grus*, *Uria aalge*, *Alca torda*, *Pinguinus impennis*, *Bubo bubo*, *Corvus corax*

Det.: Hernandez

Layer: NT79

Date: LP UP 14C=13,330±270–16,520±540 BP

Fauna: *Gavia stellata*?, *Puffinus yelkouan*, *Puffinus gravis*, *Calonectris diomedea*, *Sula bassana*, *Anser albifrons*?, *Tadorna tadorna*, *Anas platyrhynchos*, *Melanitta nigra*, *Milvus milvus*, *Accipiter gentilis*, *Buteo buteo*, *Gypaetus barbatus*, *Fulica atra*, *Larus cachinnans/fuscus*, *Larus marinus*, *Alca torda*, *Uria aalge*, *Pinguinus impennis*, *Columba livia*, *Corvus corax*, *Corvus corone*, *Pyrrhocorax graculus*, *Sturnus* sp.

Det.: Boessneck & von den Driesch

Layer: NT82 layer 13

Date: LP UP 14C=13,330±270–16,520±540 BP

Fauna: *Gavia stellata*, *Sula bassana*, *Phalacrocorax carbo*, *Phalacrocorax aristotelis*, *Calonectris diomedea*, *Puffinus yelkouan*, *Puffinus aff. griseus*, *Branta bernicla*, *Tadorna ferruginea*, *Anas clypeata*, *Aythya ferina/fuligula*, *Milvus milvus*, *Alectoris rufa*, *Fulica atra*, *Larus marinus*, *Larus canus*, *Uria aalge*, *Alca torda*, *Columba* sp., *Alauda arvensis*, *Hirundo rustica*, *Turdus* sp., *Corvus corax*, *Pyrrhocorax pyrrhocorax*

Det.: Hernandez

Layer: 14

Date: LP Magdalenian

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Falco tinnunculus*, *Lanius excubitor*, *Monticola solitarius*, *Corvus corone*, *Pyrrhocorax pyrrhocorax*

Det.: Eastham

Layer: 15

Date: LP Magdalenian

Fauna: *Sula bassana*, *Anas platyrhynchos*, *Aythya nyroca*, *Circus gallicus*, *Pinguinus impennis*, *Columba livia*, *Monticola solitarius*, *Pyrrhocorax graculus*, *Coccothraustes coccothraustes*

Det.: Eastham

Layer: 16

Date: LP Magdalenian

Fauna: *Puffinus griseus*, *Sula bassana*, *Anser* sp., *Anas platyrhynchos*, *Circus gallicus*, *Alectoris rufa*, *Larus fuscus*, *Uria aalge*, *Columba livia*, *Corvus corone*

Det.: Eastham

SP 42 Cueva de Santimamiñe (Vizcaya)

Type: c

Sources: Altuna 1972; Gaillard 1927; Lambrecht 1933; Lowe 1933a; Villalta 1964 (Aranzadi & Barandarián 1935a)

Layer: V

Date: LP LG Azilian

Fauna: *Anser anser*, *Anas platyrhynchos*, *Aythya ferina*, *Accipiter nisus*, *Aquila chrysaetos*, *Falco subbuteo*, *Falco tinnunculus*, *Alectoris rufa*, *Alectoris graeca*, *Alectoris barbara*, *Perdix perdix*, *Phasianus* sp., *Gallinula chloropus*, *Columba livia*, *Columba oenas*, *Asio flammeus*, *Alauda arvensis*, *Prunella collaris*, *Turdus merula*, *Pyrrhocorax graculus*, *Pyrrhocorax pyrrhocorax*, *Garrulus glandarius*, *Nucifraga caryocatactes*, *Pica pica*, *Corvus corone*, *Corvus corax*

Det.: Gaillard

Notes: *Phasianus* sp. is actually *Gallus gallus*, according to Lowe (1933)

SP 43 Cueva de Torre (Guipuzcoa)

Type: c

Source: Barandiarán 1971

Date: LP LG Magdalenian

Fauna: *Sula bassana***SP 44 Cueva de Valdegoba (Burgos)**

Alt.: 930

Type: c

Sources: Diez et al. 1988–89; Hernandez 1993

Date: LP Mousterian

Fauna: *Anas* spp., *Aegypius monachus*, *Falco tinnunculus*, *Alectoris* sp., *Coturnix coturnix*, *Columba* sp., *Athene noctua*, *Turdus* sp., *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*

Det.: Sánchez-Marco

SP 45 Cueva de Zafarraya (Malaga)

Type: c

Sources: Eastham 1988, 1989; Hernandez 1994; Sánchez *in litt.* (Vega 1988)

Date: LP Mousterian, Early Würm (IS 5?)

Fauna: *Falco tinnunculus*, *Falco* sp., *Alectoris rufa*, *Columba livia*, *Apus melba*, *Hirundo rustica*, *Monticola solitarius*, *Pyrrhocorax* sp., *Corvus corax*

Det.: Eastham, Ruiz

Date: LP 14C < 32,000 BP

Fauna: *Neophron percnopterus*, *Gypaetus barbatus*, *Gyps fulvus*, *Alectoris rufa*, *Vanellus vanellus*, *Columba livia*, *Columba livia/oenas*, *Athene noctua*, *Apus melba*, *Hirundo rupestris*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*

Det: Hernandez

Notes: also known as Boquete de Zaffaraya; this is perhaps the youngest known Middle Palaeolithic site where Mousterian may have persisted until well after 30,000 BP

SP 46 Cueva de el Parco (Lérida)

Type: c

Source: Hernandez 1993

Date: LP/Hol Epipalaeolithic

Fauna: *Alectoris rufa*, *Perdix perdix*, *Athene noctua*, *Columba livia*, *Turdus* sp., *Turdus viscivorus*, cf. *Turdus iliacus*, *Pica pica*, *Pyrrhocorax graculus*, *Fringilla* sp., *Miliaria calandra*

Det.: Hernandez

SP 47 Cueva de las Tuxuneras (Barcelona)

Type: c

Source: Villalta 1964

Date: LP ?

Fauna: *Pyrhcorax graculus*, *Pyrhcorax pyrhcorax*

Det.: Villalta

SP 48 Cueva del Caballon (Burgos)

Alt.: 760

Type: c

Sources: Wolf 1938–41

Date: LP

Fauna: *Corvus monedula*

Notes: also known as Cueva Caballon

SP 49 Cueva del Conde (Oviedo)

Type: c

Sources: Altuna 1977; Freeman 1977; Straus 1983

Layer: D (=6)

Date: LP Mousterian IS 4 ?

Fauna: *Pyrhcorax graculus*

Notes: also known as El Conde

SP 50 Cueva del Toll (Barcelona)

Type: c

Sources: Villalta 1964

Date: LP

Fauna: *Lagopus mutus*, *Alectoris barbara*, *Alectoris graeca*, *Perdix perdix*, *Strix aluco*,
Luscinia luscinia, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*

Det.: Villalta

SP 51 Cueva la Blanca (Burgos)

Alt.: 780

Type: c

Sources: Clark et al. 1979; Sánchez *in litt.*; Wolf 1938–41

Date: LP

Fauna: *Corvus monedula*

Date: LP Würm

Fauna: *Aquila* sp.

SP 52 Cuevaona (Asturias)

Type: c

Sources: Sánchez-Marco 1986

Date: LP LG Magdalenian

Fauna: *Gyps fulvus*, *Bubo bubo*

Det.: Sánchez-Marco

Notes: also known as La Cueva

SP 53 Devil's Tower (Gibraltar)

Type: c

Sources: Breuil 1922; Garrod et al. 1928; Lambrecht 1933; Villalta 1964; Wolf 1938–41

Date: LP Mousterian 14C >30,000 BP

Fauna: *Puffinus puffinus*, *Calonectris diomedea*, *Phalacrocorax carbo* ?, *Phalacrocorax aristotelis*, *Melanitta fusca*?, *Mergus* cf. *serrator*, *Haliaeetus albicilla*, *Hieraaetus fasciatus*, *Hieraaetus pennatus*, *Gyps fulvus*, *Falco naumanni* ?, *Falco eleonorae*, *Falco peregrinus*, *Falco subbuteo*, *Falco tinnunculus*, *Alectoris barbara*, *Alectoris rufa* ?, *Larus fuscus*, *Sterna sandvicensis* ?, *Pinguinus impennis*, *Uria aalge*, *Columba livia*, *Columba oenas*, *Columba palumbus*, *Picus viridis*, *Apus melba*, *Hirundo rustica*, *Turdus* sp. *Turdus* cf. *merula*, *Turdus viscivorus*, *Pyrhcorax graculus*, *Fringilla* cf. *coelebs*, *Passer* sp., *Pyrhcorax pyrrhcorax*

Det.: Bate

Fauna: *Branta leucopsis* ?, *Aegypius monachus*, *Haliaeetus* sp., *Falco columbarius*, *Falco tinnunculus*, *Alectoris rufa*, *Vanellus vanellus*, *Columba livia*, *Strix aluco*, *Apus melba*, *Hirundo rustica*, *Sturnus vulgaris*, *Pyrhcorax graculus*?

Det.: Newton

Notes: the deposits possibly span the interval ca. 30–85 KA BP; also known as Forbes quarry

SP 54 Ekain (Guipuzcoa)

Type: c

Sources: Eastham 1984, 1985, 1986, 1988

Layer: II, IV

Date: LP/Hol ? LG Azilian 14C=9,540±210,9,460±185 BP

Fauna: *Tadorna tadorna* ?, *Anas platyrhynchos*, *Anas penelope*, *Lagopus mutus*, *Alauda arvensis*, *Lullula arborea*, *Turdus merula*, *Sylvia atricapilla*?, *Sturnus vulgaris*, *Garrulus glandarius*, *Pyrhcorax graculus*

Layer: VIa

Date: LP LG Final Magdalenian 14C=12,050±190 BP

Fauna: *Pyrhcorax graculus*

Layer: VII

Date: LP Lower (Middle?) Magdalenian 14C=13,950–16,510 BP

Fauna: *Anas platyrhynchos*, *Falco tinnunculus*, *Hirundo rustica*, *Anthus spinoletta*, *Oenanthe oenanthe*, *Turdus philomelos*, *Parus major*, *Pyrhcorax graculus*, *Carduelis chloris*, *Passer domesticus*, *Miliaria calandra*, *Emberiza citrinella*, *Emberiza* sp.

Layer: VIII

Date: LP 14C=20,900±450 BP

Fauna: *Hirundo rustica*, *Anthus spinoletta*, *Turdus merula*, *Pyrhcorax graculus*

Layer: IX-X

Date: LP Aurignaco-Perigordian 14C=30,600 BP

Fauna: *Garrulus glandarius*, *Pyrhcorax graculus*
 Det.: Eastham

SP 55 El Castillo (Santander)

Type: c

Sources: Cabrera 1984

Layer: 7

Date: LP Magdalenian between "A" and "B"

Fauna: *Aquila* sp., *Corvus monedula*

Layer: 8

Date: LP Magdalenian "Beta" 14C=16,850±220 BP

Fauna: *Anas platyrhynchos*, *Athene* sp. ?, *Corvus monedula*

Layer: 12

Date: LP Aurignacian "Alfa"

Fauna: *Anas platyrhynchos*, *Falco tinnunculus*, *Lagopus mutus*, *Bonasa bonasia*,
Corvus monedula

Layer: 13

Date: LP between Aurgnacian "Alfa" and "Beta"

Fauna: *Anas* sp., *Anas crecca*, *Falco tinnunculus*, *Lagopus mutus*, *Asio flammeus*,
Pyrhcorax sp., *Corvus* sp., *Corvus corax*, *Garrulus glandarius*

Layer: 14

Date: LP Aurignacian "Beta"

Fauna: *Branta bernicla* ?, *Anas platyrhynchos*, *Aquila* sp., *Columba livia*, *Pyrhcorax*
 sp., *Corvus monedula*, *Corvus corax*

Layer: "Rodent 1"

Date: LP top of Aurignacian "G"

Fauna: *Anas* sp., *Anas clypeata*, *Anas penelope*, *Anas crecca*, *Melanitta fusca*, *Falco tin-*
nunculus, *Bonasa bonasia*, *Lagopus mutus*, *Vanellus vanellus*, *Pluvialis squatarola*,
Calidris sp., *Calidris alpina*, *Larus marinus*, *Columba livia*, *Bubo bubo*, *Strix aluco*,
Asio flammeus, *Cinclus cinclus*, *Pyrhcorax* sp., *Garrulus glandarius*, *Corvus mon-*
edula, *Corvus corax*, *Coccothraustes coccothraustes*, *Fringilla montifringilla*, *Mil-*
iaria calandra

Layer: 16

Date: LP Aurignacian "G"

Fauna: *Melanitta nigra*, *Aegyptius monachus*, *Aquila* sp., *Corvus corax*

Date: LP Lower Aurignacian "G"

Fauna: *Anas* sp., *Anas crecca*, *Mergus serrator*, *Falco tinnunculus*, *Bonasa bonasia*,
Lagopus mutus, *Perdix perdix*, *Crex crex*, *Fulica cristata*, *Vanellus vanellus*, *Calidris*
canutus, *Larus ridibundus*, *Sterna hirundo*, *Alle alle*, *Columba livia*, *Bubo bubo*,
Asio flammeus, *Turdus pilaris* ?, *Turdus iliacus* ?, *Cinclus cinclus*, *Pyrhcorax* sp.,
Corvus monedula, *Corvus corax*, *Sturnus vulgaris*, *Coccothraustes coccothraustes*,
Plectrophenax nivalis

Layer: "Rodent 2"

Date: LP base of Aurignacian "G"

Fauna: *Turdus philomelos*, *Corvus* sp., *Coccothraustes coccothraustes*

Layer: 18

Date: LP Aurignacian "Delta" 14C=37,700±1,800–40,000±2,100 BP
 Fauna: *Aquila* sp., *Falco tinnunculus*, *Lagopus mutus*, *Perdix perdix*, *Scolopax rusticola*,
Larus canus, *Pica pica*, *Corvus monedula*, *Corvus corax*, *Corvus* sp.
 Det.: Vaufrey, Fischer & Newton
 Layer: 20
 Date: LP Mousterian "A"
 Fauna: *Falco tinnunculus*, *Corvus monedula*, *Coccothraustes coccothraustes*
 Det.: Newton
 Layer: 22
 Date: LP Mousterian "B"
 Fauna: *Aegypius monachus*?, *Pyrhocorax* sp.
 Det.: Newton
 Layer: 24
 Date: MP ? Acheulean
 Fauna: *Corvus monedula*
 Notes: also known as Cueva del Castillo

SP 56 El Padul (Granada)

Alt.: 900
 Type: o
 Source: Fuentes & Meijide 1970
 Date: LP
 Fauna: *Anas platyrhynchos*
 Det.: Fuentes

SP 57 El Pendo (Santander)

Type: c
 Source: Fuentes 1980
 Layer: I
 Date: LP LG Azilian, Dryas 3?
 Fauna: *Perdix perdix*, *Falco* sp.
 Layer: II
 Date: LP LG Late Magdalenian
 Fauna: *Aquila* sp., *Athene noctua*, *Garrulus glandarius*, *Corvus corone*, *Turdus philomelos*
 Layer: IIab
 Date: LP LG Late Magdalenian
 Fauna: *Garrulus glandarius*
 Layer: IIcd
 Date: LP LG Late Magdalenian
 Fauna: *Turdus philomelos*
 Layer: Vb
 Date: LP Gravettian or Late Aurignacian
 Fauna: *Gyps fulvus*

Det.: Fuentes

SP 58 El Salt (Alicante)

Type: c

Source: Eastham 1989

Date: LP Mousterian

Fauna: *Anas platyrhynchos*, *Columba* sp., *Pyrhcorax* sp.

Det.: Eastham

Notes: near Alcoy

SP 59 Erralla Cave (Guipuzcoa)

Type: c

Sources: Eastham 1985, 1988

Layer: Level VI (spit 26,28–29)

Date: LP Sterile, Dryas 1 or older

Fauna: *Falco subbuteo*, *Falco tinnunculus*, *Pluvialis apricaria*, *Columba livia*, *Motacilla alba*, *Pyrhcorax graculus*, *Emberiza cirrus*

Layer: Level V (spit 13–25)

Date: LP Lower Magdalenian, Dryas 1 14C=15,740–16,270 BP

Fauna: *Anas platyrhynchos*, *Aquila/Buteo* sp., *Accipiter gentilis*, *Falco naumanni*, *Falco tinnunculus*, *Lagopus mutus*, *Alectoris rufa*, *Perdix perdix*, *Coturnix coturnix*, *Tringa totanus*, *Chlidonias niger*, *Columba livia*, *Nyctea scandiaca*, *Asio otus*, *Strix aluco*, *Jynx torquilla*, *Lullula arborea*, *Alauda arvensis*, *Hirundo rustica*, *Lanius minor/excubitor*, *Acrocephalus scirpaceus*, *Oenanthe oenanthe*, *Turdus merula*, *Turdus iliacus*, *Turdus philomelos*, *Turdus viscivorus*, *Sturnus vulgaris*, *Garrulus glandarius*, *Pyrhcorax graculus*, *Miliaria calandra*, *Carduelis chloris*, *Passer domesticus*, *Emberiza citrinella*, *Emberiza cirrus*

Layer: Level IV (spit 11–12)

Date: LP Pre-Bölling 14C=14,570±300, 15,800±230; also dated 10,580±270 BP

Fauna: *Lagopus mutus*, *Columba livia*, *Lullula arborea*, *Alauda arvensis*, *Lanius minor/excubitor*, *Pyrhcorax graculus*, *Emberiza citrinella*

Layer: Level I–III (spit 1–8)

Date: LP LG Magdalenian final, Alleröd 14C=12,310±190 BP (III)

Fauna: *Falco tinnunculus*, *Turdus philomelos*, *Sturnus vulgaris*, *Pyrhcorax graculus*, *Carduelis chloris*, *Miliaria calandra*, *Emberiza citrinella*

Det.: Eastham

SP 60 Es Bufador de Son Berenguer (Mallorca)

Type: c

Source: Alcover et al. 1981

Date: LP

Fauna: *Turdus iliacus*, *Turdus viscivorus*

Notes: also known as Cova des Bufador



SPAIN [CANARIES] (SP)

SP 61 Es Pouàs (Eivissa)

Alt.: 236

Type: c

Sources: Alcover et al. 1981, 1992; Alcover & Mc Minn 1992, 1994; Florit et al. 1989; Moyà-Solà et al. 1984; Sondaar et al. 1995; J. A. Alcover pers. com.

Date: LP, ca. 30 KA BP-Holocene

Fauna: *Calonectris diomedea*, *Puffinus yelkouan mauretanicus*, Procellariidae n. sp., *Hydrobates pelagicus*, *Phalacrocorax aristotelis*, *Anser* aff. *erythropus*, *Branta* sp., *Anas crecca*, *Haliaeetus albicilla*, *Circus cyaneus*, *Pandion haliaetus*, *Falco eleonorae*, *Falco naumanni*, *Falco tinnunculus*, *Coturnix coturnix*, *Rallus* sp., *Crex crex*, *Grus primigenia*, *Otis tarda*, *Burhinus oedicephalus*, *Charadrius* cf. *morinellus*, *Charadrius* sp., *Pluvialis* sp., *Vanellus vanellus*, *Numenius arquata*, *Gallinago gallinago*, *Scolopax rusticola*, *Columba livia*, *Columba palumbus*, *Cuculus canorus*, *Bubo bubo*, *Otus scops*, *Asio flammeus*, Strigidae n. sp., *Apus apus/pallidus*, *Coracias garrulus*, *Upupa epops*, *Caprimulgus* sp., *Alauda arvensis*, *Galerida cristata/theklae*, *Calandrella* sp., *Hirundo* sp., *Phoenicurus* sp., *Erithacus rubecula*, *Turdus* sp., *Ficedula* sp., *Lanius minor*, *Lanius excubitor*, *Lanius senator*, *Pyrhacorax pyrrhacorax*, *Pyrhacorax graculus*, *Corvus* cf. *corone*, *Corvus monedula*, *Corvus corax*, *Coccothraustes coccothraustes*, *Carduelis cannabina*, *Carduelis chloris*, *Montifringilla nivalis*, *Fringilla* sp., *Petronia petronia*, *Passer domesticus*, *Miliaria calandra*

Det: Alcover

Stored: Museu de la Naturaleza de les Iles Balears

SP 62 Genista Cave 4A (Gibraltar)

Type: c

Sources: Hernandez 1993; Wolf 1938–41

Date: LP/Hol

Fauna: *Gavia* sp., *Puffinus puffinus*, *Phasianus* sp., *Columba livia*

SP 63 Genova (Mallorca)

Type: c

Sources: Alcover et al. 1981; Mourer-Chauviré et al. 1977

Date: EP Villafranchien

Fauna: *Turdus* cf. *viscivorus*

Det.: Mourer-Chauviré

Notes: also known as Avenc de Génova

SP 64 Gorham's Cave (Gibraltar)

Type: c

Sources: Eastham 1968, 1989

Layer: A

Date: LP/Hol

Fauna: *Aythya fuligula*, *Gyps fulvus*, *Milvus milvus*, *Falco peregrinus*, *Fulica atra*, *Fratercula arctica*, *Columba livia*, *Sturnus vulgaris/unicolor*, *Corvus corax*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Emberiza* sp.

Layer: A2

Date: LP/Hol

Fauna: *Phalacrocorax aristotelis*, *Fratercula arctica*

Layer: B1

Date: LP UP "Magdalenian"

Fauna: *Puffinus puffinus yelkouan*, *Haliaeetus albicilla*, *Falco tinnunculus*, *Himantopus* cf. *himantopus*, *Charadrius* cf. *dubius*, *Fratercula arctica*, *Columba livia*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Fringilla coelebs*

Layer: B2

Date: LP UP Perigordian

Fauna: *Phalacrocorax aristotelis*, *Gyps fulvus*, *Milvus milvus*, *Falco tinnunculus*, *Alectoris rufa*, *Columba livia*, *Corvus corone*

Layer: D1

Date: LP Aurignacian 14C=27,860±300, 28,710±200 BP

Fauna: *Gyps fulvus*, *Milvus milvus*, *Haliaeetus albicilla*, *Falco peregrinus*, *Alectoris rufa*, *Larus fuscus*, *Larus argentatus*, *Columba livia*, *Bubo bubo*, *Sturnus vulgaris/unicolor*, *Corvus corone*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Fringilla coelebs*

Layer: D2

Date: LP Aurignacian 14C=27,860±200, 28,710±200 BP

Fauna: *Gyps fulvus*, *Milvus milvus*, *Haliaeetus albicilla*, *Alectoris rufa*, *Columba livia*, *Hirundo rustica*, *Corvus monedula*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Sturnus vulgaris/unicolor*, *Fringilla coelebs*

Layer: E

Date: LP UP

Fauna: *Gyps fulvus*, *Milvus milvus*, *Alectoris rufa*, *Fratercula arctica*, *Columba livia*, *Turdus viscivorus*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Emberiza* sp.

Layer: F1

Date: LP UP

Fauna: *Gyps fulvus*, *Hieraaetus fasciatus*, *Milvus milvus*, *Columba livia*, *Corvus corone*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*, *Sturnus vulgaris/unicolor*

Layer: F2

Date: LP earliest UP (F2 is the lowest Upper Paleolithic layer)

Fauna: *Ciconia ciconia*, *Alectoris rufa*, *Gyps fulvus*, *Hieraaetus fasciatus*, *Milvus milvus*, *Columba livia*, *Corvus corone*, *Pyrrhocorax graculus*, *Sturnus vulgaris/unicolor*

Layer: G

Date: LP Mousterian 14C=49,200±3200, 47,700±1500, >47,000 BP, Würm II, IS 3

Fauna: *Phalacrocorax aristotelis*, *Ciconia ciconia*, *Clangula hyemalis*, *Gyps fulvus*, *Milvus milvus*, *Haliaeetus albicilla*, *Falco peregrinus*, *Alectoris graeca*, *Alectoris rufa*, *Fulica atra*, *Columba livia*, *Turdus viscivorus*, *Sturnus vulgaris/unicolor*, *Corvus corax*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*

Layer: J/J2

Date: LP Würm I/II, mid IS 3?

Fauna: *Corvus corax*, *Pyrrhocorax pyrrhocorax*

Notes: cave uninhabited due to high sea level

Layer: K

Date: LP Mousterian, Würm I, IS 3?

Fauna: *Gavia stellata*, *Phalacrocorax aristotelis*, *Ardea cf. purpurea*, *Tadorna ferruginea*, *Netta rufina*, *Aythya fuligula*, *Clangula hyemalis*, *Gyps fulvus*, *Milvus milvus*, *Alectoris rufa*, *Haematopus ostralegus*, *Larus fuscus*, *Pinguinus impennis*, *Alle alle*, *Columba livia*, *Nyctea scandiaca*, *Strix sp.*, *Corvus monedula*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*

Layer: M

Date: LP Mousterian, Würm I, IS 3 ?

Fauna: *Phalacrocorax aristotelis*, *Aythya nyroca*, *Clangula hyemalis*, *Melanitta fusca*, *Gyps fulvus*, *Milvus milvus*, *Falco tinnunculus*, *Fulica atra*, *Anthropoides virgo*, *Haematopus ostralegus*, *Larus ridibundus*, *Columba livia*, *Nyctea scandiaca*, *Corvus corax*, *Corvus corone*, *Corvus monedula*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*

Layer: N

Date: LP Mousterian, Würm I, IS 3 ?

Fauna: *Netta rufina*, *Milvus milvus*, *Columba livia*, *Pyrrhocorax pyrrhocorax*

Layer: P

Date: LP Mousterian, Würm I, IS 3 ?

Fauna: *Anas platyrhynchos*, *Gyps fulvus*, *Fulica atra*, *Columba livia*, *Corvus corax*, *Corvus corone*, *Pyrrhocorax pyrrhocorax*

Layer: Q

Date: LP Mousterian, Würm I, Late IS 4 ?

Fauna: *Milvus milvus*, *Alectoris rufa*, *Hirundo rustica*, *Pyrrhocorax pyrrhocorax*

Layer: R

Date: LP Mousterian, Würm I, IS 4 ?

Fauna: *Gavia stellata*, *Phalacrocorax aristotelis*, *Gyps fulvus*, *Milvus milvus*, *Alectoris rufa*, *Larus fuscus*, *Columba livia*, *Pyrrhocorax pyrrhocorax*

Layer: S

Date: LP Mousterian, Würm I, early IS 4 ?

Fauna: *Phalacrocorax aristotelis*, *Anas platyrhynchos*, *Hieraaetus fasciatus*, *Strix* sp., *Corvus corone*

Det.: Eastham

Stored: A. Eastham private collection

Notes: the stratigraphy at this site as published is questionable (J Cooper pers. com.).

SP 65 Gruta de Serinya (Gerona)

Type: c

Sources: Sánchez *in litt.*; Villalta 1964; Vilette 1983; Wolf 1938–41 (Estevez 1979, Harlé 1909)

Date: LP LG Magdalenian-Azilian

Fauna: *Anser* sp., *Buteo buteo*, *Circus* sp., *Otis tarda*, *Tetrax tetrax*, *Chlamydotis undulata*, *Columba livia*, *Coturnix coturnix*, *Alectoris graeca*, *Corvus corax*, *Pyrhcorax graculus*

Det.: Milne-Edwards, Villalta

Date: LP LG Upper Magdalenian 14C=11,700 BP, Magdalenian IV–VI 14C=11,470±500 BP

Fauna: *Perdix perdix*, *Columba oenas*, *Pyrhcorax graculus*

Det.: Vilette

Date: LP Magdalenian

Fauna: *Aquila chrysaetos*, *Perdix perdix*, *Columba livia*, *Pyrhcorax graculus*

Notes: also known as Bora Gran, Bora Gran d'en Carreras; Wolf's and Villaltas lists are not identical

SP 66 Huéscar-1 (Granada)

Type: o ?

Source: Sánchez-Marco 1989

Date: EP, approximately the same age as Vallonet

Fauna: cf. *Tachybaptus ruficollis*, *Anas crecca/querquedula*, *Anas platyrhynchos*, *Anas clypeata*, *Anas strepera*, *Anas* sp., *Netta rufina*, *Aythya ferina*, *Aythya nyroca*, *Aythya fuligula*, *Aythya* sp., *Perdix perdix*, *Crex crex*, *Bubo bubo*

Det.: Sánchez-Marco

SP 67 Jandia Peninsula, Fuerteventura (Canaries)

Alt.: 40

Type: o

Source: Walker, Wragg & Harrison 1990

Date: LP 14C=32,100±1,100 BP

Fauna: *Puffinus holer*

Det.: Walker

SP 68 La Riera (Asturias)

Type: c

Source: Eastham 1986b

Layer: 27

Date: LP LG Azilian 14C=10,635±120 (top), 12,270±400 (base) BP

Fauna: *Anser fabalis/brachyrhynchus*, *Anas platyrhynchos*, *Anas querquedula*, *Aquila chrysaetos*, *Falco tinnunculus*, *Perdix perdix*, *Garrulus glandarius*, *Miliaria calandra*

Layer: 26

Date: LP LG Azilian/Upper Magdalenian

Fauna: *Phalacrocorax carbo*, *Anser fabalis/brachyrhynchus*, *Anas platyrhynchos*, *Anas crecca*, *Anas acuta*, *Anas querquedula*, *Somateria mollissima*, *Strix aluco*, *Turdus merula*, *Turdus philomelos*, *Turdus viscivorus*

Layer: 25

Date: LP LG

Fauna: *Anas acuta*

Layer: 24

Date: LP LG Upper Magdalenian 14C=10,890±430 BP

Fauna: *Anser fabalis/brachyrhynchus*, *Anas platyrhynchos*, *Anas acuta*, *Anas querquedula*, *Lagopus mutus*, *Parus major*, *Garrulus glandarius*

Det.: Eastham

SP 69 Las Yedras (Granada)

Type: c

Source: Ruiz Bustos 1978

Date: LP Early LP "Würm I"

Fauna: *Aquila chrysaetos*, *Corvus* sp.

SP 70 Lezetxiki (Guipuzcoa)

Type: c

Source: Elorza 1990

Layer: Vb, VI

Date: LP Mousterian, Würm I–II, U/Th 70,000±9,000, 186,000+16,400–61,000 BP (VI)

Fauna: *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*

Det.: Eastham

Notes: at least level VI may actually be Late MP

SP 71 Mallaetes (Valencia)

Type: c

Source: Davidson 1989

Date: LP UP "Aurignacian" 14C=30,570±560 BP

Fauna: *Anas platyrhynchos*, *Alectoris rufa*, *Columba livia*, *Athene noctua*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*

Det.: Eastham

SP 72 Mollet I (Gerona)

Source: Sánchez *in litt.* (Estévez 1979)

Date: LP Riss/Würm

Fauna: *Lagopus mutus*, *Alectoris graeca*, *Alectoris barbara*, *Vanellus vanellus*, *Columba oenas*, *Strix aluco*, *Upupa epops*, *Pyrhcorax graculus*, *Pyrhcorax pyrhcorax*

SP 73 Parpalló (Valencia)

Type: c

Source: Davidson 1989

Date: LP UP

Fauna: *Anas platyrhynchos*, *Columba livia*

Det.: Eastham

SP 74 Pedrera de S'Onix (Mallorca)

Type: c

Sources: Alcover et al. 1981; Mourer-Chauviré et al. 1980; Sondaar et al. 1995

Date: LPI/EP 1.64–1.80 MA BP

Fauna: *Cygnus* cf. *cygnus*, *Bucephala* cf. *clangula*, *Aegypius* cf. *monachus*, *Coturnix* cf. *coturnix*, cf. *Porzana porzana*, *Scolopax rusticola*, *Tyto balearica*, *Otus scops*, *Dendrocopos* cf. *major*, *Melanocorypha* cf. *calandra*, cf. *Lullula arborea*, *Troglodytes* cf. *troglodytes*, *Prunella* cf. *modularis*, *Erithacus* cf. *rubecula*, *Turdus* cf. *merula*, *Turdus* cf. *iliacus/philomelos*, *Turdus iliacus*, *Muscicapa* cf. *striata*, *Sylvia* cf. *atri-capilla*, *Regulus* cf. *ignicapillus*, *Aegithalos* cf. *caudatus*, *Parus* cf. *cristatus*, *Parus* cf. *ater*, *Parus* cf. *major*, *Fringilla* cf. *coelebs*, *Carduelis* cf. *carduelis*, *Coccothraustes* cf. *coccothraustes*, cf. *Pica pica*, cf. *Nucifraga caryocatactes*, *Pyrhcorax* cf. *pyrhcorax*, *Corvus pliocaenus*

Det.: Mourer-Chauviré, Alcover

Stored: Museum d'Histoire Naturelle des Baléares

SP 75 Pinilla del Valle (Madrid)

Sources: Alferez et al. 1982; Sánchez *in litt.*

Date: MP Late MP, IS 6

Fauna: *Anas platyrhynchos*, *Anas crecca*, *Tadorna ferruginea*, *Falco tinnunculus*, *Falco naumanni*, aff *Lagopus* sp., *Alectoris* cf. *rufa*, *Coturnix coturnix*, *Lullula arborea*, *Galerida* cf. *theklae*, *Galerida* sp., *Hirundo rupestris*, *Anthus spinoletta*, *Lanius senator*, cf. *Prunella collaris*, *Oenanthe* sp., *Turdus* cf. *torquatus*, *Turdus viscivorus*, *Emberiza* cf. *melanocephala*, *Corvus corone*

Det.: Jánosy

Stored: Departamento de Paleontología de la Universidad Complutense de Madrid

SP 76 Reclau Viver (Gerona)

Type: c

Source: Villalta 1964

Date: LP Solutrean 14C=13,300±600 BP, 14C=14,750–18,700 BP (Perigordien-Aurignacian); too young ?

Fauna: *Gyps fulvus*, *Alectoris barbara*, *Corvus corax*, *Pyrhacorax pyrrhacorax*
 Det.: Villalta

SP 77 Roc de la Melca (Gerona)

Type: c
 Source: Vilette 1983
 Date: LP Gravettian 14C=20,900 BP
 Fauna: *Perdix perdix*, *Coturnix coturnix*, *Corvus monedula*
 Det.: Vilette

SP 78 Sant-Gregori (Tarragona)

Type: c
 Source: Hernandez 1993
 Date: LP/Hol Epipalaeolithic
 Fauna: *Corvus corax*
 Det.: Hernandez

SP 79 Sevels Cave (Gibraltar)

Type: c
 Source: Wolf 1938–41
 Date: LP/Hol
 Fauna: *Puffinus puffinus*, *Sula bassana*, *Phalacrocorax carbo*, *Falco tinnunculus*, *Gyps fulvus*, *Francolinus francolinus*, *Columba livia*, *Turdus viscivorus*, *Corvus corax*, *Corvus corone*, *Pica pica*

SP 80 Son Bauzà (Mallorca)

Type: c
 Sources: Ballmann & Adrover 1970; Mourer-Chauviré et al. 1977; Villalta 1964
 Fauna: *Scolopax rusticola*, *Columba* sp., *Strix* sp., *Otus scops*, *Apus melba*, *Turdus* sp., *Turdus viscivorus*, *Turdus iliacus*, *Turdus merula*?, *Sylvia* sp., *Coccothraustes coccothraustes*, *Carduelis cannabina*, “*Nucifraga caryocatactes*” “*Pica pica*”
 Det.: Ballman; Villalta; Smeenk; Mourer-Chauviré
 Notes: also known as Son Baucà and Cova de Son Baucà

SP 81 S'Espasa (Gerona)

Type: c
 Source: Estévez-Escalera 1976
 Date: LP Early Würm ?
 Fauna: *Falco* sp., *Nyctea scandiaca*, *Strix aluco*, *Columba oenas*, *Columba palumbus*, *Columba livia*, *Pyrhacorax pyrrhacorax*, *Pyrhacorax graculus*, *Corvus corax*, *Fringilla coelebs*

SP 82 Torralba (Soria)

Type: o

Sources: Mourer-Chauviré 1979b; Sánchez 1990 (Aguirre & Fuentes 1969)

Date: MP Acheulean

Fauna: *Tadorna ferruginea*, *Anas* cf. *platyrhynchos*, *Mergus serrator*, *Porphyrio porphyrio*

Det.: Sánchez-Marco; Fuentes

Notes: *Anas* cf. *platyrhynchos* from Aguirre & Fuentes 1969

SP 83 Urtiaga (Guipuzcoa)

Alt.: 130

Type: c

Sources: Eastham 1985, 1989; Elorza 1990

Layer: c

Date: LP/Hol Azilian 14C=8,700±170 BP

Fauna: *Anser fabalis*, *Anas platyrhynchos*, *Anas clypeata*, *Aythya ferina*, *Tetrao tetrix*, *Alle alle*, *Columba livia/oenas*, *Calandrella cinerea*, *Sturnus vulgaris*, *Corvus monedula*, *Garrulus glandarius*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus* ?, *Emberiza* sp.

Layer: D-E

Date: LP LG Magdalenian V-VI 14C=10,280±190 BP (applies to layer D "Magdalenienense final VI")

Fauna: *Anser anser*, *Anser fabalis*, *Branta leucopsis*, *Tadorna tadorna*, *Anas penelope*, *Anas clypeata*, *Mergus serrator*, *Buteo rufinus*, *Falco peregrinus*, *Lagopus mutus*, *Vanellus vanellus*, *Columba oenas*, *Columba palumbus*, *Turdus viscivorus*, *Sturnus vulgaris*, *Corvus corax*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*, *Emberiza* sp.

Layer: F-G

Date: LP Lower Magdalenian 14C=17,050±140 BP (applies to layer F "Magdalenienense final")

Fauna: *Buteo rufinus*, *Aquila chrysaetos*, *Falco rusticolus*, *Falco peregrinus*, *Lagopus mutus*, *Perdix perdix*, *Otis tarda*, *Columba livia*, *Corvus corax*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*

Layer: I

Date: LP Würm IIIB

Fauna: *Neophron percnopterus*, *Accipiter gentilis*, *Buteo rufinus*, *Aquila chrysaetos*, *Falco rusticolus*, *Falco peregrinus*, *Corvus monedula*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*

Layer: ?

Date: LP Magdalenian

Fauna: *Pinguinus impennis*

Det.: Eastham

SP 84 Barranc de Binigaus (Minorca)

Type: c

Sources: Mourer-Chauviré et al. 1980; Alcover et al. 1981

Date: EP/LPI MN 18

Fauna: *Coturnix* cf. *coturnix*, *Tyto balearica*
Det.: Mourer-Chauviré; Alcover
Stored: Museum de Histoire Naturelle des Baléares

SP 85 Cova de Ca Na Reia (Eivissa)

Type: c
Sources: Moyà-Solà et al. 1984; Alcover 1989
Date: EP/LPI
Fauna: *Puffinus nestori*, cf. *Buteo* sp., *Palaeocryptonyx* sp., *Columba livia/oenas*, *Athene* cf. *veta*, Passeriformes
Det.: Alcover

SP 86 Cova de Canet (Mallorca)

Type: c
Sources: Mourer-Chauviré et al. 1980; Mourer-Chauviré & Sánchez Marco 1988
Date: EP/LPI 1.86–2.43 MA BP
Fauna: *Tyto balearica*
Det.: Mourer-Chauviré & Sánchez Marco
Stored: Museum de Histoire Naturelle des Baléares

SP 87 Davant Pau (Serinya)

Type: c
Source: García i Petit 1995b
Date: LP
Fauna: *Pyrhcorax* sp./ *Corvus monedula*
Det.: García Petit

SP 88 Hueso del Caballo, Fuerteventura (Canarias)

Type: o
Source: Rando 1995a
Date: LP
Fauna: *Haliaeetus* sp.
Det.: Rando
Stored: Departamento de Biología Animal de la Universidad de la Laguna

SP 89 Meda Grande (Gerona)

Type: c
Source: Villalta 1964 (Villalta 1965)
Date: EP/LPI Villafranchian MN 18
Fauna: *Pyrhcorax* cf. *graculus*, *Pyrhcorax* cf. *pyrhcorax*
Det.: Villalta
Stored: Université Claude Bernard, Lyon (partly)
Notes: also known as Islas Medas

SP 90 Jarama VI (Guadalajara)

Type: c

Sources: Alvarez et al. 1995

Layer: 1

Date: LP

Fauna: *Falco* sp., *Alectoris rufa*, *Coturnix coturnix*, *Columba livia/oenas*, *Bubo bubo*, *Pica pica*, *Pyrrhocorax graculus*, *Pyrrhocorax pyrrhocorax*, *Corvus corone*, *Corvidae* sp.

Layer: 2

Date: LP Mousterian 14C=32,600±1,860 BP

Fauna: *Falco* sp., *Alectoris rufa*, *Pica pica*, *Pyrrhocorax pyrrhocorax*

Unstratified

Fauna: *Coccothraustes coccothraustes*

Det.: Sánchez Marco

SP 91 Tossal de la Roca (Alicante)

Type: c

Source: Sánchez Marco 1995b

Layer: I

Date: LP LG

Fauna: *Alectoris rufa*, *Tyto alba*, *Strix aluco*, *Sturnus* sp., *Pyrrhocorax graculus*

Layer: II

Date: LP LG 14C=12,480±210, 12,390±250 BP

Fauna: *Alectoris rufa*

Layer: III

Date: LP UP

Fauna: *Hirundo rupestris*

Layer: IV Date: LP UP 14C=15,360±100 BP

Fauna: *Pica pica*

Det.: Sánchez Marco

SP 92 Vieille-Castille (?)

Sources: Lambrecht 1933; Milne-Edwards 1867–71, 1875a,b

Fauna: *Perdix perdix*

Det.: Milne-Edwards

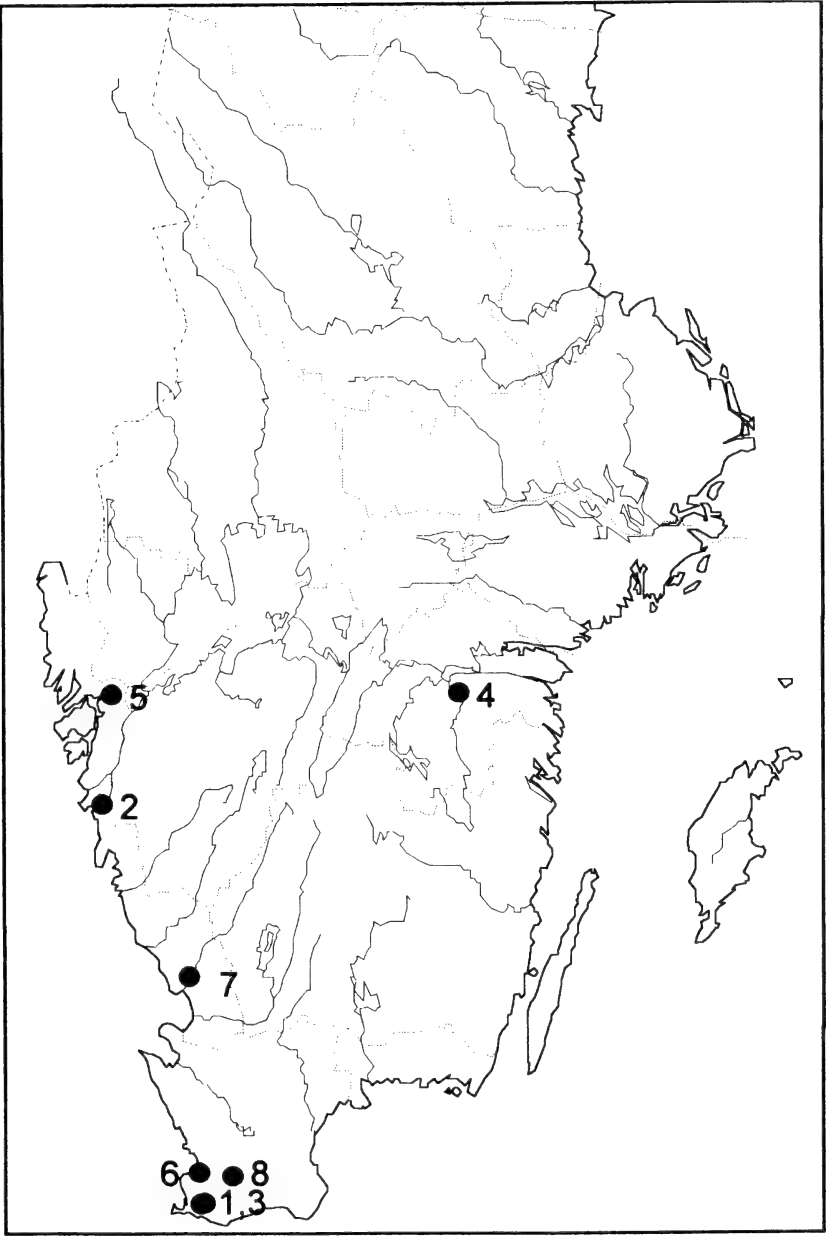
Notes: also known as Caves of Old Castile; misquoted as Vielle Cast by Lambrecht (1933) who thought the site was situated in France

SWEDEN**SV 1 Fru Alstad (Skåne)**

Type: o

Sources: Christofferson 1918; Liljegren 1975

Date: LP LG



SWEDEN (sv)

Fauna: *Anser* sp.

Notes: eggshell

SV 2 Gullbergsvass, Göteborg (Västergötland)

Type: o

Source: Ericson & Tyrberg in prep.

Date: LP ? LG ?

Fauna: *Anser* sp.

Det.: Weinardt

Stored: Paleozoologiska Avdelningen, Naturhistoriska Riksmuséet

SV 3 Hermanstorp (Skåne)

Type: o

Sources: Liljegren 1975; Löppenthin 1952; Munthe 1914

Date: LP LG Dryas 2 ?

Fauna: *Cygnus cygnus*

Det.: Löppenthin

Stored: Statens Geologiska Undersökning, Uppsala

Notes: egg, redetermined from *Pinguinus impennis* to *Cygnus cygnus* by Löppenthin

SV 4 Landeryd (Östergötland)

Type: o

Sources: Lönnberg 1914; Munthe 1914

Date: LP LG Alleröd or Dryas 3

Fauna: *Clangula hyemalis*

Det.: Winge

Stored: Naturhist. Riksmus., Paleozoolog. Avdelningen

SV 5 Samneröd (Bohuslän)

Type: o

Sources: Fredén 1986, 1988

Date: LP LG Dryas 3, $14C = 10,575 \pm 160$ BP

Fauna: *Somateria mollissima*

Det.: Hansson

Stored: Göteborgs Naturhistoriska Museum

SV 6 Segebro (Skåne)

Type: o

Sources: Liljegren 1975; Salomonsson 1962

Date: LP LG Alleröd (Brommian)

Fauna: *Anser fabalis*

Det.: Lepiksaar

Stored: Lunds Universitets Historiska Museum

SV 7 Slangemölla (Halland)

Type: o

Sources: Lambrecht 1933; Munthe 1914

Date: LP LG

Fauna: cf. *Melanitta fusca*, cf. *Bucephala clangula*

Det.: Winge

Stored: Statens Geologiska Undersökning, Uppsala

SV 8 Toppeladugård (Skåne)

Type: o

Sources: Liljegren 1975; Munthe 1914

Date: LP LG Early Alleröd 14C=11,900 BP

Fauna: *Lagopus lagopus*

Stored: Statens Geologiska Undersökning, Uppsala

SWITZERLAND**CH 1 Balm bei Günzberg (Soleure)**

Alt.: 600

Type: c

Source: Hescheler 1949 (Stehlin 1942)

Layer: West

Date: LP LG border Pleist./Hol. "Alt Tardenoisien"

Fauna: *Anas platyrhynchos*, *Aythya fuligula* ?, *Falco tinnunculus* ?, *Lagopus* sp. ?, *Tetrao tetrax*, *Crex crex* ?, *Scolopax rusticola*, *Columba palumbus*, *Dendrocygna major* ?, *Hirundo* sp., *Turdus viscivorus*, *Turdus* sp., *Lanius* sp. ?, *Corvus monedula* ?

Layer: Ost, unter

Date: LP LG border Pleist./Hol. "Azilian"

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Notes: also known as Unter der Fluh

CH 2 Brügglhöhle (Bern)

Type: c

Sources: Bandi et al. 1953; Egloff 1979; Thévenin et al. 1979

Date: LP LG Epipal./Late Magd. "Pre-Alleröd", "Dryas 2"

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Det.: Schaub

Notes: Dryas 2 according to Palynology

CH 3 Bsetzi (Schaffhausen)

Type: c

Sources: Lambrecht 1933; Hescheler 1949; Wolf 1938–41 (Mandach 1927)

Date: LP LG Magdalenian

Fauna: *Lagopus lagopus*, *Falco* sp., *Nyctea scandiaca*, *Turdus viscivorus*

Det.: Mandach ?

Notes: also known as Untere Bsetzi

CH 4 Chilchli (Bern)

Alt.: 1,810

Type: c

Sources: Koby 1964; Musil 1980b; Tschumi 1949

Layer: 3

Date: LP 14C=22,000±4,000 BP

Fauna: *Pyrhacorax graculus*

Layer: 4 "Unterste schicht"

Date: LP Mid Würmian ?

Fauna: *Corvus monedula*

Notes: also known as Kilchli

CH 5 Dentaux (Waadt)

Alt.: 1650 Type: c

Sources: Hescheler 1949; Musil 1980b

Layer: Date: LP (earlier than Würm maximum) "Mousterian"

Fauna: *Pyrhacorax pyrrhacorax*

Notes: also known as Caverne des Dentaux

CH 6 Drachenloch (St Gallen)

Alt.: 2,427

Type: c

Sources: Bächler 1921; Wolf 1938–41 (Bächler 1923)

Layer: I-IV

Date: LP

Fauna: *Pyrhacorax graculus*, *Prunella collaris*

CH 7 Ettingen (Baselland)

Alt.: 380

Type: c

Sources: Lambrecht 1933; Schibler & Sedlmeier 1993; Wolf 1938–41 (Sarasin & Stehlin 1924)

Layer: A II

Date: LP LG Azilian 14C=12,090±70–12,330±60 BP

Fauna: *Lagopus lagopus*, *Otus scops*, *Turdus* sp., *Sturnus vulgaris*

Layer: D

Date: LP LG Magdalenian 14C=12,090±70–12,330±60 BP

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Erithacus rubecula*, *Turdus viscivorus*, *Lanius excubitor*, *Corvus* sp., *Pyrhacorax graculus*, *Fringilla* sp., *Fringilla coelebs*, *Pyrhula pyrrhula*

Det.: Stehlin

Notes: also known as Büttenloch, Abri Büttenloch

CH 8 Freudenthaler höhle (Schaffhausen)

Type: c

Source: Wolf 1938–41 (Karsten 1874)

Date: LP LG Magdalenian

Fauna: *Lagopus mutus*, *Anas* sp.

Notes: also known as Rosenhalde im Freudental

CH 9 Gondiswil-Zell (Bern-Luzern)

Type: o

Source: Hescheler 1949 (Studer 1920)

Date: LP Eem s. l.(?)

Fauna: *Anas platyrhynchos*, *Phalacrocorax carbo*

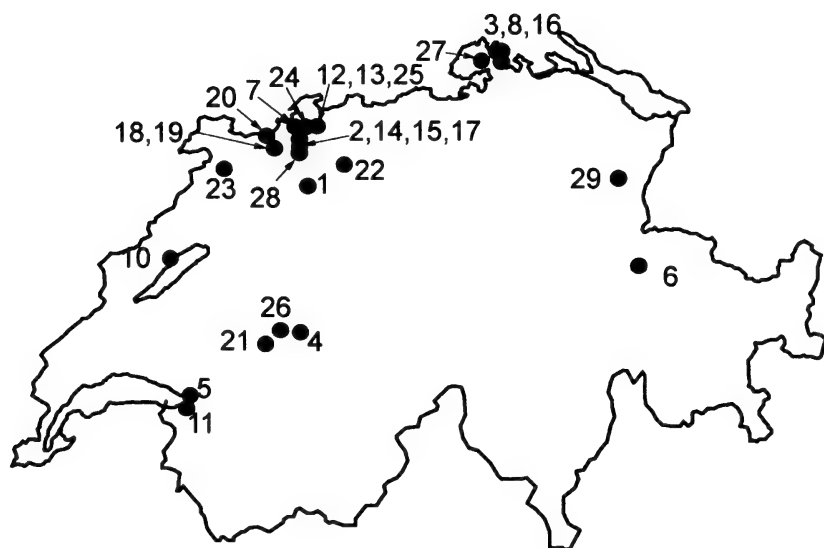
Det.: Studer

Notes: "Schieferkohle"

CH 10 Grotte de Cotencher (Neuenburg)

Alt.: 659

Type: c



Not exactly localized sites: 9

SWITZERLAND (CH)

Sources: Dubois & Stehlin 1932; Hescheler 1949; Jánosy 1980; Musil 1980b; Wolf 1938–41

Layer: “Couche á Galets”

Date: LP Mousterian Early Würm, probably IS 5a

Fauna: *Anser* sp., *Aquila heliaca*, *Falco peregrinus*, *Lagopus lagopus*, *Tetrao urogallus*, *Bubo bubo*, *Apus melba*, *Picus canus*, *Turdus* sp., *Pyrrhocorax graculus*, *Fringilla montifringilla*

Layer: “Couche Brun”

Date: LP Mousterian, Early Würm, probably IS 5c

Fauna: *Anser* sp., *Anatidarum*, *Bucephala clangula*, *Aquila chrysaetos*, *Tetrao tetrix*, *Corvus corax*, *Pyrrhocorax graculus*, *Pyrrhula pyrrhula*

Det.: Stehlin

Notes: *Aquila* sp. redetermined as *Aquila heliaca* by Jánosy (1980)

CH 11 Grotte du Scé (Waadt)

Type: c

Sources: Hescheler 1949; Lambrecht 1933; Lortet & Chantre 1872; Studer 1896; Wolf 1938–41 (Nehring 1883, Rütimeyer 1873, Saussure 1870, Schenk 1912)

Date: LP LG Magdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Aquila chrysaetos*

Det.: Rütimeyer; Studer

Notes: also known as Villeneuve and Grotte du Scex

CH 12 Hohlefelsabri (Baselland)

Alt.: 482

Type: c

Source: Kaufmann 1982 (Schaub & Schwabe 1966)

Date: LP

Fauna: *Lagopus lagopus*, *Nyctea scandiaca*

Notes: also known as Birseck Hohler Fels, Hohlefels Mittlere Höhle, Müllers Abri III, Hohlfelsabri and Hohlenfels

CH 13 Hollenberg-Höhle 3 (Baselland)

Alt.: 449

Type: c

Source: Kaufmann 1982

Layer: c/D

Date: LP Magdalenian

Fauna: *Anas platyrhynchos*, *Bucephala clangula*, *Lagopus lagopus*, *Corvus corone*

Det.: Kaufmann

CH 14 Kastelhöhle (Bern)

Alt.: 398

Type: c

Source: Stampfli 1959

Date: LP LG Magdalenian

Fauna: *Aquila chrysaetos*, *Lagopus lagopus*, *Lagopus mutus*, *Sturnus vulgaris*,
Montifringilla nivalis, *Pyrhocorax graculus*

CH 15 Kessiloch (Bern)

Type: c

Sources: Hescheler 1949; Lambrecht 1933; Wolf 1938–41 (Sarasin 1918)

Date: LP LG Magdalenian

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Asio flammeus*, *Turdus torquatus*, *Corvus*
corax, *Pica pica*, *Pyrhocorax graculus*, *Plectrophenax nivalis*

Det.: Studer; Stehlin

Notes: in Kaltenbrunner tal; also known as Heidenküche

CH 16 Kesslerloch (Schaffhausen)

Alt.: 430

Type: c

Sources: Hescheler 1906; Hescheler & Kuhn 1949; Lambrecht 1933; Wolf
1938–41 (Hescheler 1907, Studer 1904, Schenk 1912)

Layer: D I “Graue schicht”

Date: LP LG Magdalenian 14C=11,220±120 BP

Fauna: *Lagopus lagopus*, *Lagopus mutus*

Det: Hescheler

Layer: D II “Gelbe Kulturschicht”

Date: LP LG Magdalenian 14C=12,970±180 BP

Fauna: *Cygnus cygnus*, *Anas* sp., *Lagopus lagopus*, *Lagopus mutus*, *Turdus* sp.,
Corvus corax

Det: Hescheler

Layer: unstratified

Date: LP LG Magdalenian

Fauna: *Cygnus cygnus*, *Anser anser*, *Anas platyrhynchos*, *Pandion haliaetus*, *Lagopus*
lagopus, *Lagopus mutus*, *Turdus iliacus*, *Turdus pilaris*, *Corvus corone*, *Corvus corax*

Det.: Rüttimeyer; Studer

Notes: from digs in 1873,98–99; Nehring mentions *Haliaeetus albicilla* (= *Pandion*
haliaetus ?); Lambrecht also mentions *Cygnus columbianus*, *Tetrao urogallus*

Layer: unstratified

Date: LP LG Magdalenian

Fauna: *Anas* sp., *Falco* sp., *Lagopus lagopus*, *Lagopus mutus*, *Hirundo* sp., *Pica pica*,
Corvus corax

Det.: Hescheler

Notes: dig in 1902–3 “Schuttkegel”, “bei den Pfeilern” and “Südeingang”; also
known as Thaynger höhle

CH 17 Kohlerhöhle (Bern)

Type: c

Source: Hescheler & Kuhn 1949 (Lüdin 1940; Mandach 1947)

Layer: "Untere Kulturschicht"

Date: LP LG Magdalenian

Fauna: *Aquila chrysaetos*

Layer: "Obere Kulturschicht"

Date: LP LG Magdalenian

Fauna: *Lagopus* sp.

CH 18 Liesbergmühle (Abri) (Baselland)

Type: c

Source: Hescheler & Kuhn 1949 (Schaub & Jagher 1946)

Date: LP Mousterian

Fauna: *Gypaetus barbatus*

Det.: Schaub

CH 19 Liesbergmühle (Höhle) (Baselland)

Type: c

Sources: Hescheler & Kuhn 1949; Musil 1980b (Schaub & Jagher 1946)

Date: LP Mousterian

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Pyrrhocorax graculus*

Det.: Schaub

CH 20 Neumühle (Bern)

Alt.: 510

Type: c

Sources: Egloff 1979; Stampfli 1968; Thévenin et al. 1979

Date: LP LG ? Magdalenian/Azilian

Fauna: *Lagopus* sp.

Det: Stampfli

CH 21 Ranggiloeh (Bern)

Alt.: 1,845

Type: c

Sources: Koby 1964; Musil 1980b

Layer: 3

Date: LP, Early Würm ?

Fauna: *Turdus* sp.

Notes: Koby = Untere schicht

CH 22 Rislisberghöhle (Soleure)

Type: c

Sources: Egloff 1979; Lepiksaar 1983

Layer: I

Date: LP/Hol

Fauna: *Anas platyrhynchos*, *Mergus merganser*, *Crex crex*, *Numenius arquata*, *Strix aluco*, *Apus melba*?, *Phoenicurus/Erithacus* sp., *Turdus* sp., *Turdus philomelos*,

Phylloscopus cf. *trochilus*, *Regulus* sp., *Parus major*, *Parus ater*, *Sitta europaea*, *Garulus glandarius*/*Nucifraga caryocatactes*, *Pyrhocorax graculus*, *Fringilla coelebs/montifringilla*, *Loxia* sp., *Coccothraustes coccothraustes*, *Pyrhula pyrhula*, *Emberiza citrinella*

Layer: II

Date: LP LG

Fauna: *Anas platyrhynchos*, *Anas crecca/querquedula*, *Mergus merganser*, *Falco peregrinus*, *Falco tinnunculus*, *Tetrao tetrax*, *Crex crex*, *Larus argentatus/fuscus*, *Bubo bubo*, *Alauda arvensis*, *Hirundo rupestris*, *Motacilla flava/cinerea*, *Anthus spinoletta*, *Prunella collaris*, *Phylloscopus* cf. *trochilus*, *Phoenicurus/Erithacus* sp., *Turdus* sp., *Turdus philomelos*, *Parus major*, *Sitta europaea*, *Fringilla coelebs/montifringilla*, *Loxia* sp., *Coccothraustes coccothraustes*, *Pyrhula pyrhula*, *Pyrhocorax graculus*, *Corvus corax*

Layer: III

Date: LP LG

Fauna: *Oenanthe oenanthe*

Det.: Lepiksaar

Layer: ?

Date: LP LG Magdalenian 14C=11,860±230 BP

Fauna: *Lagopus* sp.

CH 23 Saint Brais I (Bern)

Alt.: 960

Type: c

Sources: Hescheler & Kuhn 1949; Musil 1980b (Koby 1938)

Layer: "Höhlenbärschicht"

Date: LP R/W-Mittel Würm ? Mousterian

Fauna: *Pyrhocorax graculus*, *Turdus* sp., *Nucifraga caryocatactes*

Det.: Koby

CH 24 Schalberg (Baselland)

Alt.: 420

Type: c

Sources: Hescheler & Kuhn 1949; Musil 1980b; Stehlin 1936

Date: LP Mousterian

Fauna: *Tetrao tetrax*?, *Turdus* sp.

Det.: Stehlin

CH 25 Schlossfelsenhöhle (Baselland)

Type: c

Sources: Hescheler & Kuhn 1949; Lambrecht 1933; Wolf 1938–41 (Sarasin 1918, Sarasin & Stehlin 1924)

Layer: A

Date: LP LG Azilian

Fauna: *Anas crecca*?, *Aquila* sp.?, *Perdix perdix*, *Turdus torquatus*, *Sturnus vulgaris*, *Pica pica*, *Fringilla coelebs*

Layer: D

Date: LP LG Magdalenian

Fauna: *Anas acuta*, *Anas crecca*, *Aquila chrysaetos*, *Lagopus mutus*, *Lagopus lagopus*, *Columba palumbus*, *Anthus* sp., *Turdus pilaris*, *Turdus torquatus*

Det.: Studer; Stehlin

Notes: also known as Eremitage bei Birseck, Birseck-Eremitage and Ermitage; ducks not listed by Hescheler; mentioned by Lambrecht: *Galerida cristata*, *Turdus viscivorus* and *merula*, *Nucifraga caryocatactes*, *Passer montanus*, *Carduelis chloris*

CH 26 Schnurenloch (Bern)

Alt.: 1,230

Type: c

Sources: Koby 1964; Musil 1980b; Tschumi 1949

Layer: 7

Date: LP Mid-Würmian (25–50,000 BP ?) or Early Würm, Mousterian ?

Fauna: *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Montifringilla nivalis*

Notes: Koby assigns *Montifringilla nivalis* and *Pyrhcorax graculus* to “Grüne schicht”, *Pyrhcorax graculus* to “Braune Schicht” while *Pyrhcorax pyrrhcorax* is uncertain

CH 27 Schweizersbild (Schaffhausen)

Type: c

Sources: Hescheler & Kuhn 1949; Koken 1912; Lambrecht 1933; Wolf 1938–41 (Nuesch 1896, Virchow 1892, Nehring 1902a,b, Studer 1902)

Layer: A II “Graue Kulturschicht”

Date: LP LG Azilian

Fauna: *Lagopus lagopus*, *Lagopus mutus*,

Det.: Studer

Layer: D II (=4)

Date: LP LG Magdalenian

Fauna: *Aquila chrysaetos*, *Falco vespertinus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Vanellus vanellus*, *Tyto alba*, *Nyctea scandiaca*, *Asio flammeus*, *Eremophila alpestris*?, *Turdus pilaris*, *Corvus corax*, *Corvus corone*, *Fringilla* sp.

Det.: Studer

Notes: “Kulturschicht Magdalenian”, “Gelbe Steppenschicht”, “Gelbe Kulturschicht”, *Strix uralensis* redetermined as *Nyctea scandiaca*

Layer: D III (=5)

Date: LP LG

Fauna: *Anas acuta*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao urogallus*, *Surnia ulula*, *Turdus viscivorus/torquatus*, *Turdus pilaris*, *Emberiza* sp.

Det.: Studer; Nehring

Notes: “Untere Nagerschicht”, “Tundraschicht”, “Gelbe Nagetierschicht”; also mentioned by Lambrecht (no information about layer): *Anas platyrhynchos*, *Pandion haliaetus*, *Haliaeetus albicilla*, *Turdus iliacus*

CH 28 Thiersteiner höhle (Baselland)

Type: c

Sources: Hescheler & Kuhn 1949; Lambrecht 1933; Wolf 1938–41 (Sarasin 1918)

Date: LP LG Magdalenian

Fauna: *Anas acuta*, *Falco peregrinus*, *Lagopus lagopus*, *Tetrao tetrix*, *Asio flammeus*, *Turdus iliacus* ?, *Turdus torquatus*, *Corvus corax*, *Corvus monedula*, *Nucifraga caryocatactes*, *Pyrrhocorax graculus*, *Montifringilla nivalis* ?

Det.: Studer; Stehlin

Notes: also known as Schlossfelsen von Thierstein; uncertain whether *Plectrophenax nivalis* or *Montifringilla nivalis***CH 29 Wildkirchli (St Gallen)**

Alt.: 1486

Type: c

Sources: Koken 1912; Lambrecht 1933; Wolf 1938–41 (Bächler 1907, 1909, 1912)

Date: LP 14C=49,000 BP “Alpine Mousterian”

Fauna: *Pyrrhocorax graculus***SYRIA****SY 1 Douara Cave**

Type: c

Sources: Bar-Yosef 1989; Takai 1974

Layer: D

Date: LP Levallois-Mousterian

Fauna: *Struthio* sp.

Det.: Takai

Layer: IIIB

Date: LPM Pal. 14C=46,700+2,200–1,700, >52,000, >53,800 BP

Fauna: *Struthio* sp.**SY 2 Tell Mureybet**

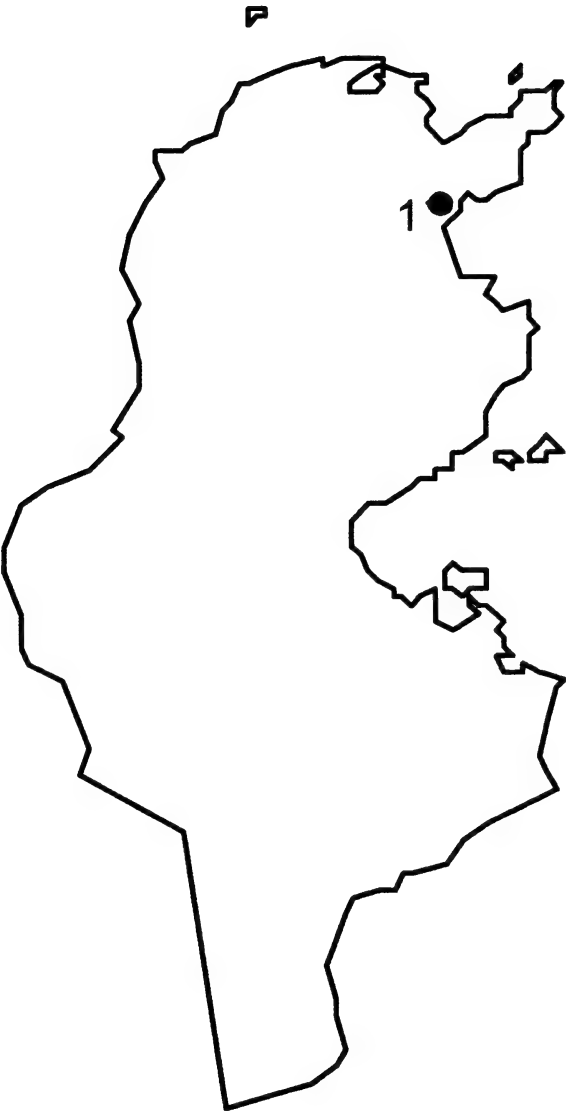
Alt.: 290

Type: o

Source: Pichon 1984

Date: LP/Hol LG ? Late Natufian/PPNA 8,900–10,590 BP

Fauna: *Podiceps nigricollis*, *Ardea cinerea*, *Egretta alba*, *Egretta garzetta*, *Anser anser*, *Tadorna tadorna*, *Anas penelope*, *Anas crecca*, *Anas platyrhynchos*, *Anas acuta*, *Anas querquedula*, *Anas chipeata*, *Marmaronetta angustirostris*, *Netta rufina*, *Aythya ferina*, *Aythya nyroca*, *Aythya fuligula*, *Aythya marila*, *Bucephala clangula*, *Mergus albellus*, *Mergus serrator*, *Pandion haliaetus*, *Milvus migrans*, *Aegypius monachus*, *Circus macrourus*, *Circus pygargus*, *Circus aeruginosus*, *Accipiter nisus*, *Accipiter gentilis*, *Buteo buteo*, *Buteo rufinus*, *Aquila clanga*, *Falco naumanni*, *Falco tinnunculus*, *Falco subbuteo*, *Perdix perdix*, *Alectoris chukar*, *Francolinus francolinus*,



TUNISIA (TU)

Porzana porzana, *Tetrax tetrax*, *Tringa stagnatilis*, *Tringa nebularia*, *Philomachus pugnax*, *Columba livia*, *Streptopelia* sp., *Bubo bubo*, *Asio otus*, *Asio flammeus*, *Asio* sp., *Athene noctua*, *Strix aluco*, *Coracias garrulus*, *Oenanthe hispanica*, *Garrulus glandarius*, *Corvus corone*

Det.: Pichon

[For map see p. 274.]

TUNISIA

TU 1 Hamada Damous

Type: o

Source: Coppens 1971

Layer: ?

Date: EP Villafranchien

Fauna: *Struthio* sp.

TURKEY

TK 1 Emirkaya-2 (Central Anatolia)

Source: Kessler & Venczel 1993

Date: MP ?

Fauna: cf. *Anas* sp., cf. *Accipiter gentilis*, cf. *Buteo buteo*, *Glaucidium passerinum*, cf. *Turdus* sp., *Sturnus* sp., *Pyrrhonorax* sp.

Det.: Kessler

UKRAINE

The correlation of Ukrainian Plio/Pleistocene sites with those of western and central Europe is somewhat uncertain. I have chosen to follow Mlíkovský (1996) in regarding sites of "Taman" age as being Early Pleistocene.

Voinstvenskii (1967) mentions a large number of birds from alluvial deposits of the Dniepr, Desna and Don rivers. Some of these are probably Pleistocene (e. g. *Lagopus*) but the composition of the faunas indicate that most of the remains are almost certainly of Holocene age, and since more details about the provenience of specific records are missing, I have chosen to ignore these records

UR 1 Adzhi-Koba (Krim)

Type: c

Sources: Baryshnikov & Potapova 1988, 1992; Burchak-Abramovich 1975; Tugarinov 1937; Voinstvenskij 1963, 1967

Date: LP "Magdalenian"

Fauna: *Perdix perdix*

Date: LP Mousterian

Fauna: *Podiceps nigricollis*, *Anas querquedula*, *Anas acuta*, *Aythya fuligula*, *Bucephala clangula*, *Mergus serrator*, *Falco cherrug*, *Lagopus lagopus*, *Lagopus mutus*, *Coturnix coturnix*, *Perdix perdix*, *Porzana porzana*, *Gallinula chloropus*, *Charadrius alexandrinus*?, *Tringa ochropus*, *Tringa totanus*, *Larus fuscus*, *Strix aluco*, *Galerida cristata*, *Eremophila alpestris*, *Lullula arborea*, *Anthus campestris*, *Oenanthe oenanthe*, *Prunella modularis*, *Pyrhcorax pyrrhcorax*, *Sturnus vulgaris*, *Coccothraustes coccothraustes*, *Carduelis chloris*, *Carduelis carduelis*, *Passer montanus*, *Miliaria calandra*

Det.: Tugarinov

Layer: 2/1

Date: LP UP

Fauna: *Anas acuta*, *Aythya nyroca*, *Aythya fuligula*, *Perdix perdix*, *Coturnix coturnix*, *Lagopus lagopus*, *Tetrao tetrix*, *Vanellus vanellus*, *Actitis hypoleucos*, *Surnia ulula*, *Melanocorypha calandra*, *Galerida cristata*, *Turdus merula*, *Turdus philomelos*, *Sturnus vulgaris*, *Garrulus glandarius*, *Pica pica*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Corvus monedula*

Layer: 2/2

Date: LP UP

Fauna: *Mergus serrator*, *Mergus merganser*, *Circus pygargus*, *Falco tinnunculus*, *Falco vespertinus*, *Perdix perdix*, *Coturnix coturnix*, *Porzana porzana*, *Tringa glareola*, *Actitis hypoleucos*, *Scolopax rusticola*, *Columba livia*, *Melanocorypha calandra*, *Galerida cristata*, *Turdus merula*, *Turdus philomelos*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Corvus monedula*

Layer: 2/3

Date: LP UP

Fauna: *Falco naumanni*, *Perdix perdix*, *Coturnix coturnix*, *Asio flammeus*, *Galerida cristata*, *Turdus philomelos*, *Coccothraustes coccothraustes*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Corvus monedula*

Layer: 2/4

Date: LP UP

Fauna: *Perdix perdix*, *Asio flammeus*, *Turdus philomelos*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Corvus monedula*

Layer: 2/1–4

Date: LP UP

Fauna: *Podiceps auritus*, *Anas penelope*, *Aythya fuligula*, *Bucephala clangula*, *Falco tinnunculus*, *Perdix perdix*, *Philomachus pugnax*, *Melanocorypha calandra*, *Galerida cristata*, *Turdus merula*, *Turdus philomelos*, *Sturnus vulgaris*, *Pyrhcorax graculus*, *Corvus monedula*

Layer: 2–3

Date: LP UP/Mousterian

Fauna: *Podiceps nigricollis*, *Falco tinnunculus*, *Perdix perdix*, *Coturnix coturnix*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Crex crex*, *Porzana porzana*, *Melanocorypha calandra*, *Melanocorypha yeltoniensis*, *Alauda arvensis*, *Turdus pilaris*, *Turdus philomelos*, *Garrulus glandarius*, *Pica pica*, *Pyrhcorax pyrrhcorax*, *Pyrhcorax graculus*, *Corvus monedula*

Layer: 3/2

Date: LP Mousterian

Fauna: *Aythya nyroca*, *Perdix perdix*, *Columba livia*, *Melanocorypha yeltoniensis*, *Pyrhcorax graculus*, *Pyrhcorax* sp.

Layer: 3/3

Date: LP Mousterian

Fauna: *Perdix perdix*, *Galerida cristata*

Layer: 3/4

Date: LP Mousterian

Fauna: *Falco vespertinus*, *Perdix perdix*

Layer: 3/5

Date: LP Mousterian

Fauna: *Perdix perdix*, *Pyrhcorax* sp.

Layer: 3/2–5

Date: LP Mousterian

Fauna: *Perdix perdix*, *Turdus philomelos*

Layer: 3 ?

Date: LP Mousterian ?

Fauna: *Anas platyrhynchos*, *Perdix perdix*, *Strix aluco*, *Melanocorypha calandra*, *Melanocorypha yeltoniensis*, *Galerida cristata*, *Pyrhcorax graculus*, *Pyrhcorax* sp.

Layer: 4

Date: LP Mousterian

Fauna: *Perdix perdix*, *Pyrhcorax* sp.

Stored: Zool. Inst. Akademia Nauk Rossiya

UR 2 Alimovskii Naves (Krim)

Type: c

Sources: Voinstvenskii 1963, 1967

Date: LP ? "Azilian"

Fauna: *Falco tinnunculus*, *Lagopus lagopus*, *Tetrao tetrix*, *Coturnix coturnix*, *Perdix perdix*, *Fulica atra*, *Himantopus himantopus*, *Scolopax rusticola*, *Columba livia*, *Otus scops*, *Athene noctua*, *Apus apus*, *Motacilla alba*, *Luscinia megarhynchos*, *Erithacus rubecula*, *Phoenicurus phoenicurus*, *Oenanthe oenanthe*, *Turdus viscivorus*, *Turdus merula*, *Parus major*, *Aegithalos caudatus*, *Corvus monedula*, *Pica pica*, *Pyrhcorax graculus*, *Coccothraustes coccothraustes*, *Carduelis carduelis*, *Passer domesticus*, *Passer montanus*, *Petronia petronia*, *Miliaria calandra*, *Emberiza citrinella*, *Emberiza cia*

Det.: Voinstvenskii

Notes: also known as Alimov naves

UR 4 Chokurcha (Krim)

Type: c

Sources: Baryshnikov & Potapova 1988, 1992; Burchak-Abramovich 1975; Vereshchagin & Baryshnikov 1980; Voinstvenskii 1967

Layer: layer 2–4

Date: LP Mousterian

Fauna: *Falco tinnunculus*, *Columba livia*, *Nyctea scandiaca*, *Alauda arvensis*, *Alauda* sp., *Hirundo rustica*, *Turdus philomelos*, *Garrulus glandarius*, *Corvus monedula*

Stored: Zool. Inst. Akademia Nauk Rossiya

Notes: species lists vary slightly between sources

UR 5 Dobranichevka (Kiev)

Type: o

Sources: Baryshnikov & Potapova 1988; Guérin et al. 1983; Potapova 1986; Soffer 1985 (Chovkopliias et al. 1981)

Date: LP LG UP 14C=12,700±200 BP

Fauna: *Lagopus lagopus*

Notes: Baryshnikov & Potapova (1988) report *Lagopus mutus* instead.

UR 6 Fatma-Koba (Krim)

Type: c

Sources: Baryshnikov & Potapova 1992; Voinstvenskii 1967

Layer II

Date: LP ? "Tardenois"

Fauna: *Otis tarda*

Layer III

Date: LP? "Azilien"

Fauna: *Falco vespertinus*, *Otis tarda*, *Passer domesticus*, *Pyrhacorax graculus*

Layer: ?

Fauna: *Perdix perdix*, *Corvus monedula*

Det.: Voinstvenskii

UR 7 Gontsy (Poltava)

Type: o

Source: Soffer 1985

Date: LP UP 14C=13,200–14,600 BP

Fauna: *Gavia arctica*, *Anas* sp., *Larus argentatus*

UR 8 Kara-Koba (Krim)

Type: c

Sources: Potapova 1986; Voinstvenskii 1967

Date: LP UP ?

Fauna: *Anas platyrhynchos*, *Anas* sp., *Aquila chrysaetos*, *Falco tinnunculus*, *Lagopus lagopus*, *Tetrao tetrix*, *Coturnix coturnix*, *Perdix perdix*, *Alectoris graeca*?, *Columba livia*, *Fulica atra*, *Delichon urbica*, *Lanius collurio*, *Corvus corone*, *Pyrhacorax graculus*, *Pyrhacorax pyrrhacorax*, *Coccothraustes coccothraustes*

UR 9 Kiik-Koba (Krim)

Type: c

Sources: Baryshnikov & Potapova 1988, 1992; Burchak-Abramovich 1975; Tugarinov 1937; Voinstvenskii 1967

Layer: 1–2

Date: LP ? "Tardenoisien"

Fauna: *Gallus gallus*, *Scolopax rusticola*

Layer: 3–4

Date: MP "Acheulean"

Fauna: *Apus apus*, *Pyrhcorax graculus*, *Pyrhcorax pyrhcorax*

Layer: 4–6

Date: LP Mousterian

Fauna: *Falco tinnunculus*, *Gallus* sp., *Perdix perdix*, *Scolopax rusticola*, *Columba livia*,
Apus apus, *Oenanthe oenanthe*, *Turdus merula*, *Turdus philomelos*, *Pyrhcorax*
graculus, *Pyrhcorax pyrhcorax*

Det.: Voinstvenskii; Tugarinov

UR 10 Korman IV (Khernovits)

Type: o

Source: Tatarinov 1977

Layer: 4

Date: LP LG

Fauna: *Tetrao* sp.

UR 11 Kosh-Koba (Krim)

Type: c

Sources: Baryshnikov & Potapova 1988; Burchak-Abramovich 1975; Tugarinov
1937; Voinstvenskii 1967

Date: LP Mousterian

Fauna: *Pyrhcorax pyrhcorax*

UR 12 Kyzyl-Koba (Krim)

Type: c

Sources: Burchak-Abramovich 1975; Baryshnikov & Potapova 1988; Voinstven-
skii 1967

Date: EP/MP

Fauna: *Corvus* cf. *monedula*, *Pyrhcorax pyrhcorax*, *Pyrhcorax graculus*

Det.: Voinstvenskij ?

Notes: also known as Krasnoi peshcher, Kisil-Koba; *Corvus monedula* only men-
tioned by Burchak-Abramovich & Voinstvenskii

UR 13 Mezhirich (Cherkassy)

Type: o

Sources: Baryshnikov & Potapova 1988; Guérin et al. 1983; Soffer 1985 (Korni-
ets et al. 1981)

Date: LP UP 14C=12,900–19,280 BP

Fauna: *Anser* sp., *Anas* sp., *Lagopus lagopus*, *Tetrao tetrix*, *Bubo bubo*, *Nyctea scandi-*
aca, *Oenanthe oenanthe*, *Corvus corax*

Notes: *Nyctea scandiaca* according to Guérin/Korniets = *Bubo bubo* ?; Barysh-
nikov & Potapova report *Lagopus mutus* instead of *Lagopus lagopus*

UR 14 Miseni (Chernigov)

Type: o

Sources: Burchak-Abramovich 1975; Soffer 1985; Zubareva 1950

Date: LP UP ("early Magdalenian") 14C=15,100±200 BP

Fauna: *Lagopus lagopus*, *Nyctea scandiaca*, *Oenanthe oenanthe*

Det.: Subareva

Notes: also known as Mezin; older 14C dates, 27,500±800–29,700±800 BP, are probably unreliable

UR 15 Nishnekrivchansk (Ternopol)

Alt.: 240

Type: c

Sources: Burchak-Abramovich 1975; Marisova 1968, 1974; Tatarinov & Bachinsky 1968; Voinstvenskii 1967 (Marisova & Tatarinov 1962)

Date: MP

Fauna: *Anas platyrhynchos*, *Anas clypeata*, *Anas penelope*, *Anas* cf. *querquedula*, *Bucephala clangula*, *Falco columbarius*, *Falco tinnunculus*, *Lagopus* cf. *lagopus*, *Tetrao* cf. *tetrix*, *Coturnix coturnix*, *Gallus gallus*, *Pluvialis squatarola*, *Charadrius* sp., *Vanellus vanellus*, *Philomachus pugnax*, *Scolopax rusticola*, *Larus canus*, *Columba livia*, *Asio flammeus*, *Otus scops*, *Delichon urbica*, *Turdus merula*, *Turdus iliacus*, *Corvus corax*, *Corvus monedula*, *Pica pica*, *Garrulus glandarius*, *Nucifraga caryocatactes*, *Carduelis cannabina*, *Plectrophenax nivalis*

Det.: Marisova; Tatarinov

Notes: also known as Krivche, Krivchanski peshcher, Nizhnee Krivche

UR 17 Novgorod-Siversk (Novgorod-Siversk)

Type: o ?

Sources: Burchak-Abramovich 1975; Soffer 1985; Voinstvenskij 1967; Zubareva 1950

Date: LP UP ("early Magdalenian") 14C=19,800±350 BP

Fauna: *Anser* sp., *Anas querquedula*, *Anas crecca*, *Anas clypeata*, *Anas platyrhynchos*, *Anas strepera*, *Anas* sp., *Falco tinnunculus*, *Circus cyaneus*?, *Lagopus lagopus*, *Tetrao tetrix*, *Crex crex*, *Rallus aquaticus*, *Porzana porzana*, *Vanellus vanellus*, *Scolopax rusticola*, *Tringa totanus*, *Limicola falcinellus*, *Charadrius morinellus*, *Tringa erythropus*, *Tringa glareola*, *Larus ridibundus*, *Sterna albifrons*, *Chlidonias leucopterus*, *Dendrocygus medius*, *Jynx torquilla*, *Calandrella cinerea*, *Alauda arvensis*, *Galerida cristata*, *Melanocorypha calandra*, *Eremophila alpestris*, *Delichon urbica*, *Hirundo rustica*, *Motacilla alba*, *Anthus campestris*, *Lanius collurio*, *Parus major*, *Parus cristatus*, *Oenanthe oenanthe*, *Sturnus vulgaris*, *Carduelis chloris*, *Carduelis carduelis*, *Fringilla coelebs*, *Passer domesticus*, *Miliaria calandra*, *Emberiza citrinella*

Det.: Subareva; Voinstvenskij

Notes: also known as Novgorod-Severskii and Siverskii; a collapsed rockshelter with disturbed stratigraphy, the character of the avifauna strongly suggests

admixture with Holocene material; Baryshnikov & Potapova (1988) also mention *Lagopus mutus* from this site; *Parus major* is only cited by Zubareva

UR 18 Perlinka (Transcarpathian Ukraina)

Type: c

Sources: Bachinskij & Chernysh 1965; Burchak-Abramovich 1975; Tatarinov & Bachinsky 1968

Date: LP

Fauna: *Parus major*

Det.: Umanskaya

Notes: also known as Malougolsk, Malaya Ugolka

UR 19 Prolom 2 (Krim)

Type: c

Sources: Baryshnikov & Potapova 1988, 1992

Layer: 1

Date: LP Mousterian, Pre-Brörup

Fauna: *Falco vespertinus*, *Alauda arvensis*

Layer: 1–2

Date: LP Mousterian, Pre-Brörup

Fauna: *Lullula arborea*

Layer: 2

Date: LP Mousterian, Pre-Brörup

Fauna: *Tadorna ferruginea*, *Perdix perdix*, *Columba* sp., *Nyctea scandiaca*, *Erithacus* sp., *Carduelis chloris*, *Pica pica*, *Corvus monedula*, *Corvus corax*

Notes: *Columba* sp. listed as *Columba rupestris* and *Erithacus* sp. as *Luscinia* sp. by Baryshnikov & Potapova (1988)

Layer: 3/1

Date: LP Mousterian, Pre-Brörup

Fauna: *Perdix perdix*, *Columba palumbus*, *Corvus monedula*

Notes: *Corvus frugilegus* also mentioned by Baryshnikov & Potapova 1988

Layer: 3/2

Date: LP Mousterian, Pre-Brörup

Fauna: *Columba livia*, *Pica pica*, *Corvus frugilegus*

Layer: 3/3

Date: LP Mousterian, Pre-Brörup

Fauna: *Corvus monedula*, *Corvus frugilegus*

Layer: 3/4

Date: LP Mousterian, Pre-Brörup

Fauna: *Corvus monedula*

Layer: 3/1–4

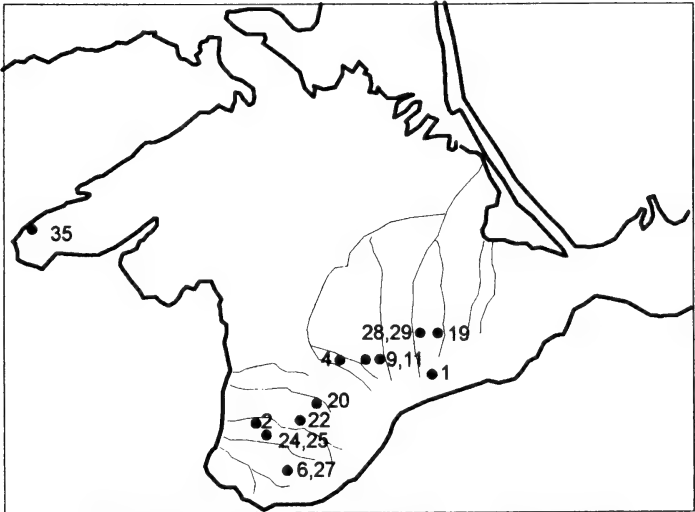
Date: LP Mousterian, Pre-Brörup

Fauna: *Tadorna ferruginea*, *Falco tinnunculus*, *Columba palumbus*, *Corvus corax*

Layer: 4



Not exactly localized sites: 18,23,26,31,32



Not exactly localized sites in this area: 8,12,30,34

UKRAINE (UR)

Date: LP Mousterian, Pre-Brörup
 Fauna: *Tadorna ferruginea*, *Corvus corax*
 Layer: unstratified
 Date: LP Mousterian, Pre-Brörup
 Fauna: *Perdix perdix*
 Det.: Baryshnikov & Potapova

UR 20 Shaitan-Koba (Krim)

Type: c
 Sources: Baryshnikov & Potapova 1988, 1992; Burchak-Abramovich 1975; Tugarinov 1937; Voinstvenskij 1967
 Date: LP Mousterian
 Fauna: *Falco tinnunculus*, *Perdix perdix*, *Columba livia*, *Apus melba*, *Apus apus*, *Corvus monedula*, *Pica pica*
 Det.: Tugarinov
 Stored: Zool. Inst. Akademia Nauk Rossiya
 Notes: *Perdix perdix* not mentioned by Baryshnikov & Potapova

UR 21 Sinyakovo I (Tarnopol)

Type: c
 Sources: Burchak-Abramovich 1975; Kretzoi 1956; Marisova & Tatarinov 1965; Pidoplichko 1955; Potapova 1986; Tatarinov & Bachinsky 1968; Tatarinov & Marisova 1971; Voinstvenskii 1967
 Date: MP
 Fauna: *Anas crecca*, *Anas acuta*, *Aquila* sp., *Lagopus lagopus*, *Tetrao* cf. *tetrax*, *Coturnix* cf. *coturnix*, *Gallinula chloropus*, *Turdus merula*, *Passer* sp.
 Notes: also known as Chertkov, Chortkov; species lists vary between sources

UR 22 Staroselye (Krim)

Type: c
 Sources: Baryshnikov & Potapova 1988, 1992; Burchak-Abramovich 1975; Voinstvenskij 1967
 Date: LP Mousterian (Late Mousterian/UP transition)
 Fauna: *Falco tinnunculus*, *Falco cherrug*, *Columba livia*

UR 23 Starunia (Stanislav)

Type: o
 Sources: Lambrecht 1933; Burchak-Abramovich 1975 (Mierzejewski 1914, Kiernik 1914, Kormos 1936)
 Date: LP
 Fauna: *Asio* sp., *Nyctea scandiaca*, *Coccothraustes coccothraustes*

UR 24 Syuren I (Krim)

Alt.: 110

Type: c

Sources: Baryshnikov & Potapova 1992; Burchak-Abramovich 1975; Tugarinov 1937; Voinstvenskij 1963, 1967

Layer: 2

Date: LP "Upper Aurignacian"

Fauna: *Anas clypeata*, *Falco tinnunculus*, *Falco vespertinus*, *Tetrao tetrax*, *Perdix perdix*, *Crex crex*, *Tringa ochropus*, *Columba livia*, *Aegolius funereus*, *Asio otus*, *Dendrocopos major*, *Eremophila alpestris*?, *Hirundo rustica*, *Oenanthe oenanthe*, *Corvus corone*, *Corvus frugilegus*, *Corvus monedula*, *Pica pica*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*, *Plectrophenax nivalis*

Det.: Tugarinov

Layer: 3

Date: LP "Middle Aurignacian"

Fauna: *Tadorna tadorna*, *Falco tinnunculus*, *Tetrao tetrax*, *Lagopus lagopus*, *Perdix perdix*, *Crex crex*, *Columba livia*, *Corvus monedula*, *Pica pica*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*

Det.: Tugarinov

Layer: 4

Date: LP "Lower Aurignacian"

Fauna: *Anas platyrhynchos*, *Aythya nyroca*, *Buteo lagopus*?, *Circus cyaneus*, *Aquila chrysaetos*, *Falco tinnunculus*, *Falco naumanni*?, *Falco columbarius*, *Falco vespertinus*, *Tetrao tetrax*, *Lagopus lagopus*, *Perdix perdix*, *Porzana porzana*, *Crex crex*, *Columba palumbus*, *Columba livia*, *Apus apus*, *Otus scops*, *Melanocorypha yeltoniensis*, *Alauda arvensis*, *Galerida cristata*, *Eremophila alpestris*?, *Hirundo rustica*, *Oenanthe oenanthe*, *Turdus pilaris*, *Corvus corone*, *Corvus monedula*, *Pica pica*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*, *Sturnus vulgaris*, *Loxia curvirostra*, *Emberiza hortulana*, *Plectrophenax nivalis*

Det.: Tugarinov

Layer: 2

Date: LP UP

Fauna: *Anas clypeata*, *Falco tinnunculus*, *Falco vespertinus*, *Tetrao tetrax*, *Perdix perdix*, *Crex crex*, *Tringa ochropus*, *Columba livia*, *Athene noctua*, *Asio otus*, *Dendrocopos major*, *Eremophila alpestris*, *Hirundo rustica*, *Plectrophenax nivalis*, *Loxia curvirostra*, *Pica pica*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax graculus*, *Corvus monedula*, *Corvus frugilegus*

Det.: Baryshnikov and Potapova

Layer: 3

Date: LP UP

Fauna: *Tadorna tadorna*, *Falco tinnunculus*, *Lagopus lagopus*, *Tetrao tetrax*, *Perdix perdix*, *Crex crex*, *Columba livia*, *Pica pica*, *Pyrrhocorax graculus*, *Pyrrhocorax sp.*, *Corvus monedula*

Det.: Baryshnikov & Potapova

Layer: 4

Date: LP UP

Fauna: *Anas platyrhynchos*, *Aythya nyroca*, *Circus cyaneus*, *Buteo lagopus*?, *Aquila chrysaetos*, *Falco naumanni*?, *Falco tinnunculus*, *Falco vespertinus*, *Falco columbarius*

barius, *Lagopus lagopus*, *Tetrao tetrax*, *Perdix perdix*, *Phasianus colchicus*, *Crex crex*, *Porzana porzana*, *Columba livia*, *Columba palumbus*, *Otus scops*, *Apus apus*, *Melanocorypha yeltoniensis*, *Galerida cristata*, *Eremophila alpestris*, *Hirundo rustica*, *Oenanthe oenanthe*, *Turdus pilaris*, *Sturnus vulgaris*, *Pica pica*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Corvus monedula*, *Corvus corone*, *Plectrophenax nivalis*, *Loxia curvirostra*, *Emberiza hortulana*

Det.: Baryshnikov & Potapova

Layer: 2–4

Date: LP UP

Fauna: *Falco vespertinus*, *Falco tinnunculus*, *Tetrao tetrax*, *Crex crex*, *Columba livia*, *Melanocorypha yeltoniensis*, *Alauda arvensis*, *Hirundo rustica*, *Loxia curvirostra*, *Pica pica*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Corvus monedula*, *Corvus corone*

Det.: Baryshnikov and Potapova

Date: LP? "Azilian"

Fauna: *Cygnus* cf. *cygnus*, *Falco tinnunculus*, *Perdix perdix*, *Columba livia*, *Coracias garrulus*, *Upupa epops*, *Turdus merula*, *Turdus philomelos*, *Turdus* sp., *Ficedula albicollis*, *Garrulus glandarius*, *Pica pica*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax* sp.

Det.: Tugarinov; Voinstvenskii

Notes: Tugarinov also mentions *Turdus pilaris*

Date: MP-LP (Acheuleen-"Magdalenian")

Fauna: *Tadorna tadorna*, *Anas clypeata*, *Anas crecca*, *Anas platyrhynchos*, *Aythya nyroca*, *Accipiter nisus*, *Circus pygargus*, *Circus cyaneus*, *Buteo lagopus*, *Aquila chrysaetos*, *Falco tinnunculus*, *Falco naumanni*, *Falco columbarius*, *Falco vespertinus*, *Falco subbuteo*, *Tetrao tetrax*, *Lagopus lagopus*, *Phasianus colchicus*, *Perdix perdix*, *Coturnix coturnix*, *Porzana porzana*, *Crex crex*, *Tetrax tetrax*, *Tringa ochropus*, *Vanellus vanellus*, *Scolopax rusticola*, *Chlidonias niger*, *Columba palumbus*, *Columba livia*, *Streptopelia turtur*, *Athene noctua*, *Aegolius funereus*, *Asio otus*, *Asio flammeus*, *Otus scops*, *Apus apus*, *Dendrocopos major*, *Dendrocopos medius*, *Lullula arborea*, *Melanocorypha calandra*, *Melanocorypha yeltoniensis*, *Alauda arvensis*, *Galerida cristata*, *Eremophila alpestris*, *Anthus campestris*, *Anthus trivialis*, *Hirundo rustica*, *Prunella modularis*, *Saxicola rubetra*, *Oenanthe oenanthe*, *Erithacus rubecula*, *Turdus merula*, *Turdus philomelos*, *Turdus pilaris*, *Lanius collurio*, *Parus major*, *Corvus corone*, *Corvus frugilegus*, *Corvus monedula*, *Pica pica*, *Garrulus glandarius*, *Pyrrhonorax pyrrhonorax*, *Pyrrhonorax graculus*, *Sturnus vulgaris*, *Loxia curvirostra*, *Coccothraustes coccothraustes*, *Carduelis chloris*, *Carduelis carduelis*, *Passer montanus*, *Passer domesticus*, *Petronia petronia*, *Montifringilla nivalis*, *Miliaria calandra*, *Emberiza hortulana*, *Plectrophenax nivalis*

Det.: Tugarinov, Voinstvenskii

Stored: Zool. Inst. Akademia Nauk Rossiya

UR 25 Syuren 2 (Krim)

Type: c

Sources: Baryshnikov & Potapova 1992; Tugarinov 1937; Voinstvenskii 1967

Date: LP? "Azilien"

Fauna: *Cygnus* cf. *cygnus*, *Falco tinnunculus*, *Perdix perdix*, *Columba livia*, *Coracias garrulus*, *Upupa epops*, *Turdus merula*, *Turdus philomelos*, *Turdus* sp., *Ficedula albicollis*, *Garrulus glandarius*, *Pica pica*, *Pyrrhocorax pyrrhocorax*, *Pyrrhocorax* sp.

Det: Tugarinov; Voinstvenskii

Notes: Tugarinov also mentions *Turdus pilaris*

UR 26 Tikhonovka (Zaporozhe)

Sources: Burchak-Abramovich 1975; Voinstvenskii 1967

Date: EP/MP "Homichen"

Fauna: *Ardea* cf. *cinerea*, *Anas* sp., *Perdix* cf. *perdix*, *Coturnix* cf. *coturnix*, *Alauda* cf. *arvensis*, Passeriformes

Det.: Voinstvenskii?

Notes: also known as Arabka

UR 27 Tsan'-Koba (Krim)

Type: c

Sources: Tugarinov 1937; Voinstvenskii 1967

Date: LP ? "Azilien-Tardenoisien"

Fauna: *Ardea cinerea*, *Pandion haliaetud*, *Falco tinnunculus*, *Falco subbuteo*, *Circus cyaneus*, *Coturnix coturnix*, *Otis tarda*, *Strix aluco*, *Turdus merula*, *Pica pica*, *Garrulus glandarius*

Det.: Tugarinov; Voinstvenskii

UR 28 Zaskalnaya V (Krim)

Type: c

Sources: Baryshnikov & Potapova 1988, 1992; Gerasimov 1978

Layer: 4

Date: LP Mousterian

Fauna: *Aquila chrysaetos*, *Delichon urbica*

UR 29 Zaskalnaya VI (Krim)

Type: c

Sources: Baryshnikov & Potapova 1988, 1992

Layer: 2

Date: LP Mousterian

Fauna: *Lullula arborea*

UR 30 Zmeinogo Naves (Krim)

Type: c

Source: Voinstvenskii 1967

Date: LP/Early Hol

Fauna: *Vanellus vanellus*, *Pica pica*

Det: Voinstvenskii

UR 31 Cherevichnyj (Odessa)

Type: o

Sources: Dubrovo & Kapelist 1979; Voinstvenskii 1967

Date: EP/LPI

Fauna: *Anas* cf. *clypeata*, *Anas* cf. *querquedula*, *Athene* cf. *noctua*

Det: Voinstvenskii ?

Notes: also known as Cherevichnoe

UR 32 Kanry (Cherson)

Type: o

Sources: Dubrovo & Kapelist 1979; Voinstvenskii 1967

Date: EP/LPI

Fauna: *Gavia* sp.

Det: Voinstvenskii ?

UR 33 Kujal'nitzkogo limana (Odessa)

Type: o

Sources: Dubrovo & Kapelist 1979; Voinstvenskii 1967

Date: EP/LPI

Fauna: *Buteo* cf. *buteo*, *Perdix* cf. *perdix*

Det: Voinstvenskii ?

Notes: also known as Zhevakhova gora

UR 34 Murzak Koba (Krim)

Type: c

Source: Voinstvenskii 1967

Date: LP ?

Fauna: *Mergus serrator*, *Otis tarda*, *Lagopus lagopus*, *Coturnix coturnix*, *Rallus aquaticus*, *Columba palumbus*, *Athene noctua*, *Turdus philomelos*, *Turdus merula*, *Parus major*, *Corvus corone*, *Corvus monedula*, *Garrulus glandarius*, *Pyrhocorax pyrrhocorax***UR 35 Tarchankut (Krim)**

Sources: Dubrovo & Kapelist 1979; Voinstvenskii 1967

Date: EP/LPI

Fauna: *Philomachus* cf. *pugnax*, *Coracias* cf. *garrulus*, *Dendrocopos* cf. *medius*, *Calandrella* cf. *cinerea*, *Parus* cf. *major*, *Fringilla* cf. *coelebs*

Det: Voinstvenskii ?

UR 36 Kryzhanovka (Odessa)

Source: Dubrovo & Kapelist 1989

Layer: Upper Horizon

Date: EP/LPI

Fauna: *Struthio* sp.

Stored: Geological Institute, Ukrainian Academy of Science, Kiev ?

Notes: Lower Horizon at this site is of Pliocene (MN 17) age (Mlikovský 1996).

UNITED KINGDOM

UK 1 Aldeby (Norfolk)

Type: o

Sources: Harrison 1979c; Newton 1891

Date: MP Bramertonian (Chillesford Crag) MNQ 21

Fauna: *Uria aalge*

Det.: Harrison

Stored: Norwich Museum ?

UK 2 Aveline's Hole (Somerset)

Type: c

Sources: Davies 1921; Jackson 1962; Newton 1922b, 1924b; Wolf 1938–41

Layer: 1-foot

Date: LP-Hol

Fauna: *Cygnus olor*, *Anas crecca* ?, *Lagopus lagopus*, *Lagopus mutus*, *Phasianus sp.* ?,
Perdix perdix, *Meleagris gallopavo*, *Pluvialis apricaria*, *Vanellus vanellus*, *Numenius arquata*, *Columba livia* ?, *Anthus spinoletta* ?, *Corvus corax* ?, *Pica pica*

Layer: 2-foot

Date: LP-Hol

Fauna: *Phasianus colchicus*, *Perdix perdix*, *Pica pica*

Layer: 3-foot

Date: LP-Hol

Fauna: *Falco tinnunculus*, *Lagopus lagopus*, *Perdix perdix*, *Phasianus colchicus*, *Pluvialis apricaria* ?, *Athene noctua*, *Motacilla alba*, *Hirundo rustica*, *Turdus viscivorus*,
Turdus philomelos, *Turdus iliacus*, *Turdus pilaris*, *Turdus merula*, *Sylvia atricapilla*,
Parus major, *Pica pica*, *Corvus monedula* ?, *Passer domesticus*, *Carduelis cannabina*,
Miliaria calandra

Layer: 1

Date: LP

Fauna: *Botaurus stellaris* ?, *Anas sp.*, *Aquila chrysaetos*, *Falco peregrinus*, *Columba livia*,
Asio flammeus ?, *Alauda arvensis*, *Anthus pratensis*, *Anthus richardi* ?, *Hirundo rustica*,
Saxicola rubetra, *Phoenicurus phoenicurus*, *Erithacus rubecula*, *Turdus viscivorus*,
Turdus philomelos, *Turdus pilaris*, *Prunella modularis*, *Parus major*, *Sitta europaea*,
Corvus monedula, *Coccothraustes coccothraustes*, *Fringilla coelebs*,
Pyrrhula pyrrhula, *Emberiza citrinella*, *Plectrophenax nivalis*

Layer: 2

Date: LP

Fauna: *Falco peregrinus*, *Falco tinnunculus*, *Tetrao tetrix* ?, *Lagopus lagopus*, *Lagopus mutus*,
Perdix perdix, *Pluvialis squatarola*, *Limosa sp.* ?, *Numenius arquata*, *Larus argentatus*,
Alauda arvensis, *Anthus pratensis*, *Hirundo rustica*, *Saxicola rubetra*,
Phoenicurus phoenicurus, *Turdus viscivorus* ?, *Turdus philomelos* ?, *Turdus iliacus* ?,
Turdus pilaris, *Turdus merula*, *Acrocephalus schoenobaenus* ?, *Parus major*, *Sitta europaea*,
Corvus frugilegus, *Coccothraustes coccothraustes*

Layer: unstratified

Date: LP

Fauna: *Otis tarda*

Layer: Stalagmite

Date: LP-Hol

Fauna: *Cygnus olor*, *Turdus viscivorus*

Det.: Newton

Notes: $14C=12,380\pm130$ BP (uncertain which layer)

UK 3 Bacon Hole (Glamorgan)

Alt.: 5

Type: c

Sources: Harrison 1977a, 1987; Stringer et al. 1986

Layer: 2 (G)

Date: LP IS 5e Ipswichian s. s. later part

Fauna: *Anser fabalis*, *Falco subbuteo*, *Pluvialis apricaria*, *Sturnus vulgaris*

Layer: D-F (3-4)

Date: LP Ipswichian s. s. (IS 5e) U/Th 122 ± 9 KA BP

Fauna: *Calonectris diomedea*, *Milvus milvus*, *Calidris alpina*, *Arenaria interpres*, *Alca tords*, *Alauda arvensis*, *Hirundo rustica*, *Oenanthe oenanthe*, *Turdus merula/torquata*, *Sturnus vulgaris*, *Corvus corone/frugilegus*

Det.: Harrison

Stored: British Museum (Natural History)

Notes: *Clangula hyemalis* mentioned by Harrison 1977a but not 1987

UK 4 Bacton (Norfolk)

Type: o

Sources: Harrison 1979c, 1985

Date: MP Pastonian MNQ 21

Fauna: *Buteo buteo/lagopus*, *Alca torda*

Det.: Newton; Harrison

UK 5 Bielbacks (Yorkshire)

Type: o

Sources: Bell 1915; Lambrecht 1933

Date: LP ?

Fauna: *Anas platyrhynchos*

UK 6 Bridged Pot Shelter (Somerset)

Type: c

Sources: Harrison 1987; Jackson 1962

Date: LP LG Loch Lomond Readvance ? (Dryas 3)

Fauna: *Mergus albellus*, *Bonasa bonasia*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Alauda arvensis*

Det.: Harrison

Stored: British Museum (Natural History)

UK 7 Brixham Cave (Devonshire)

Type: c

Sources: Bell 1915; Harrison 1980b; Lambrecht 1933; Lydekker 1891a; Wolf 1938–41

Date: LP Devensian (Middle Devensian, Interstadial ?)

Fauna: *Tadorna tadorna*, *Buteo buteo*

Det.: Harrison

Stored: British Museum (Natural History)

Notes: also known as Windmill Hill Cave; Lydekker (1891) also mentions *Anser* sp. (*Anser fabalis* ?) and Bell (1915) *Anser fabalis*

UK 8 Carnforth Cave (Lancashire)

Alt.: 50

Type: c

Sources: Bell 1915; Bramwell 1960b; Lambrecht 1933; Wolf 1938–41 (Jackson 1910)

Fauna: *Delichon urbica*, *Saxicola rubetra*, *Parus caeruleus*

Notes: also known as Warton Crag, Dog Holes

UK 9 Cathole (Glamorgan)

Type: c

Sources: Bramwell 1977b; Campbell 1977; Harrison 1980a, 1987

Layer: c/USB

Date: LP/Hol border

Fauna: *Anser* cf. *anser*

Layer: USB

Date: LP LG LUP Dryas 3 ? (Zone III)

Fauna: *Tadorna* cf. *tadorna*, *Anas* cf. *strepera*, *Scolopax* cf. *rusticola*

Layer: UOB

Date: LP LG LUP Bölling-Alleröd? (Zone II)

Fauna: *Tadorna* cf. *tadorna*, *Anas crecca*

Layer: MSB

Date: LP LG LUP Dryas 1 ? (Zone Ic)

Fauna: *Lagopus* cf. *lagopus*

Layer: LOB

Date: LP LG LUP Dryas 1 ? (Zone Ib)

Fauna: *Anser* cf. *anser*, *Anthus* sp.

Det.: Bramwell

Layer: LSB

Date: LP LUP Dryas 1 ? (Zone Ib)

Fauna: *Anser* sp., Anatidae, *Lagopus lagopus*, *Numenius* cf. *arquata*, Sylviinae

Layer: A2

Date: LP Middle Devensian ?

Fauna: *Lagopus* cf. *lagopus*, *Perdix* cf. *perdix*, *Lymnocyrtus minimus*

Det.: Bramwell

Layer: ?

Date: LP

Fauna: *Haliaeetus albicilla*, *Cygnus columbianus*

Det.: Harrison

Stored: British Museum (Natural History)

UK 10 Chelm's Combe Shelter (Somerset)

Type: c

Sources: Harrison 1987; Jackson 1962

Layer: Spit 10-13

Date: LP Loch Lomond Readvance ? (Dryas 3) 14C=10,190±130-10,910±110 BP

Fauna: *Branta leucopsis*, *Falco tinnunculus*, *Bonasa bonasia*, *Lagopus lagopus*, *Lagopus mutus*, *Alle alle*, *Bubo bubo*, *Turdus merula/torquatus*, *Turdus philomelos*

Det.: Newton; Harrison

Stored: Wells Museum, Cheddar Caves Museum

Notes: Newton (in Balch 1927) mentions 13 additional species

UK 11 Chillesford (Suffolk)

Type: o

Source: Harrison 1979c

Date: MP Bramertonian (Chillesford Crag) MNQ 21

Fauna: *Uria aalge*

Det.: Newton; Harrison

Stored: British Museum (Natural History)

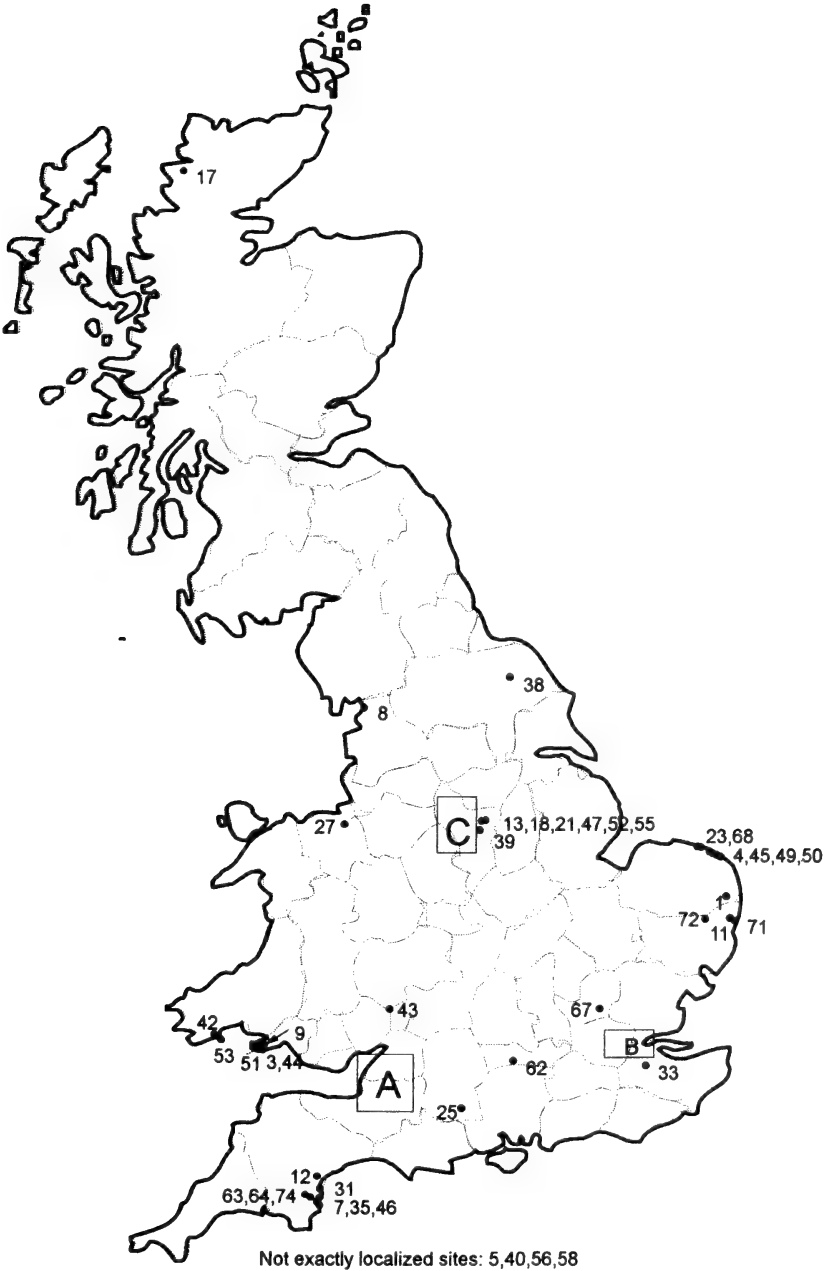
UK 12 Chudleigh Cave (Devonshire)

Type: c

Sources: Bell 1915, 1922; Harrison 1980a, 1987; Lambrecht 1938; Newton 1923; Wolf 1938-41

Date: LP-Hol

Fauna: *Anser anser* ?, *Anas platyrhynchos*, *Mergus albellus* ?, *Accipiter nisus*, *Falco tinnunculus*, *Lagopus mutus*, *Lagopus lagopus*, *Bonasa bonasia*, *Perdix perdix*, *Gallus gallus*, *Coturnix coturnix*?, *Phasianus colchicus* ?, *Charadrius hiaticula* ?, *Vanellus vanellus* ?, *Numenius phaeopus* ?, *Lymnocyrtus minimus* ?, *Limosa lapponica*, *Cephus grylle*, *Alle alle* ?, *Columba palumbus/livia*, *Columba oenas/livia*, *Columba* sp., *Tyto alba*, *Dendrocopos major* ?, *Alauda arvensis*, *Galerida cristata*, *Eremophila alpestris*, *Motacilla alba*, *Motacilla cinerea*, *Anthus pratensis*, *Anthus trivialis*, *Anthus spinoletta*, *Prunella modularis* ?, *Cinclus cinclus*, *Troglodytes troglodytes*, *Oenanthe oenanthe*, *Saxicola torquata/rubecula*, *Phoenicurus phoenicurus*, *Luscinia megarhynchos*, *Erithacus rubecula*, *Turdus merula/torquata*, *Turdus pilaris*,



UNITED KINGDOM (UK)

[See pp. 464 and 466 for enlarged sections A–C.]

Turdus philomelos, *Turdus iliacus*, *Turdus viscivorus*, *Parus major*, *Parus ater*, *Sitta europaea*, *Sturnus vulgaris*, *Corvus monedula*, *Pyrrhocorax pyrrhocorax* ?, *Garrulus glandarius*, *Fringilla coelebs/montefringilla*, *Carduelis carduelis*, *Carduelis cannabina*, *Carduelis chloris* ?, *Coccothraustes coccothraustes*, *Calcarius lapponicus*, *Passer domesticus*, *Plectrophenax nivalis*, *Miliaria calandra*, *Emberiza citrinella*, *Emberiza schoeniclus*

Det.: Newton, Harrison

Stored: British Museum (Natural History)

Notes: species reidentified by Harrison: *Calidris canutus*, *Uria aalge*, *Fratercula arctica*, *Athene noctua*, *Lanius excubitor*, *Sylvia communis*, *Certhis familiaris*; "?" denotes species from older lists not found by Harrison

UK 13 Church Hole Cave (Derbyshire)

Alt.: 71

Type: c

Source: Jenkinson 1984a

Date: Hol.? 14C=12,240±150 BP

Fauna: *Anas* sp., *Haliaeetus albicilla*, *Accipiter gentilis*, *Corvus monedula*

Det.: Bramwell ?

Notes: Stalagmite/Cave Earth and Red Sand

UK 14 Clevedon Cave (Somerset)

Type: c

Sources: Bell 1915; Lambrecht 1933; Wolf 1938–41 (Male & Male 1907)

Date: LP

Fauna: *Phalacrocorax carbo*, *Ardea cinerea*, *Branta bernicla*, *Anas acuta*, *Anas penelope*, *Anas platyrhynchos*, *Buteo buteo*, *Haliaeetus albicilla*, *Charadrius hiaticula*, *Pluvialis apricaria*, *Numenius phaeopus*, *Arenaria interpres*, *Larus canus*, *Apus apus*, *Alauda arvensis*, *Oenanthe oenanthe*, *Erithacus rubecula*, *Turdus merula*, *Turdus iliacus*, *Turdus philomelos*, *Corvus corax*, *Carduelis chloris*

Notes: also known as Walton cave

UK 15 Cotte de Saint Brelade (Jersey)

Type: c

Sources: Andrews 1920; Bell 1922; Callow & Cornford 1986; Lambrecht 1933; Marret 1916; Wolf 1938–41

Date: LP Mousterian

Fauna: *Anser brachyrhynchus*, *Branta leucopsis*, *Branta bernicla*, *Falco tinnunculus*, cf. *Tetrao tetrix*, *Lagopus mutus*, *Gallinula chloropus*, *Pinguinus impennis*, *Cinclus cinclus*

Det.: Bate, Andrews

Stored: Jersey Museum ?

UK 16 Crayford (Kent)

Type: o

Sources: Harrison & Walker 1977; Stuart 1982

Date: MP ? ("Ipswichian" s. l. (IS 7 ?) pollen zone "Ip" IV)

Fauna: *Mergus albellus*, *Gallus gallus*, *Fulica atra*

Det.: Harrison & Walker

Stored: British Museum (Natural History)

UK 17 Creag nan Uamh cave (Sutherland)

Type: c

Sources: Lambrecht 1933; Newton 1917; Wolf 1938–41

Layer: 3 or 5

Date: LP LG ?

Fauna: *Cygnus* cf. *olor*, *Branta leucopsis*, *Anas* cf. *platyrhynchos*, *Clangula hyemalis*, *Melanitta fusca*, *Melanitta nigra*, *Lagopus mutus*, *Pluvialis apricaria*, *Fratercula arctica*

Layer: 5

Date: LP LG ?

Fauna: *Anas penelope*, *Anas crecca*, *Clangula hyemalis*, *Aythya fuligula*, *Melanitta nigra*, *Somateria mollissima*, *Lagopus mutus*, *Lagopus lagopus*, *Pluvialis squatarola*, *Alle alle*, *Fringilla* cf. *coelebs*

Det.: Newton

Notes: also known as Alt nan Uamh; 14C date from reindeer antler in one of the Creag Nan Uamh caves gave a date of $10,080 \pm 70$ BP but recent, as yet unpublished, 14C dates indicates that some of the remains may be of Mid-Devensian age (Anne Eastham *in litt.*)

UK 18 Creswell Caves (Derbyshire)

Type: c

Source: Jenkinson 1984a

Date: LP-Hol

Fauna: *Anser anser*, *Anas* sp., *Lagopus lagopus*, *Perdix perdix*, *Gallus gallus*, *Accipiter gentilis*, *Coccothraustes coccothraustes*, *Corvus corax*

Det.: Bramwell ?

Notes: mixed material from the 1875–77 excavations in Robin Hood's Cave, Church Hole Cave, Pin Hole Cave & Mother Grundy's Parlour

UK 19 Dalling (Norfolk)

Type: o

Sources: Bell 1915; Lambrecht 1933

Date: LP Subarctic ?

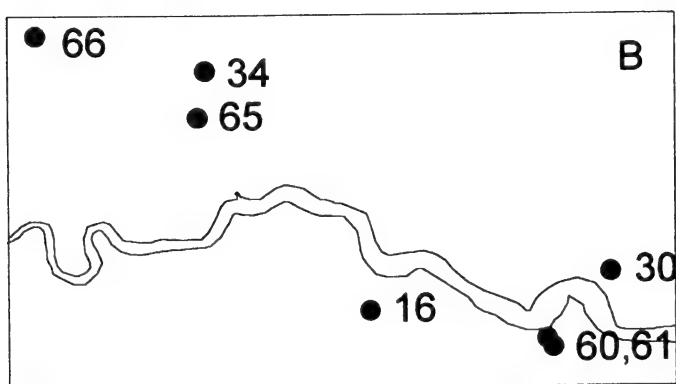
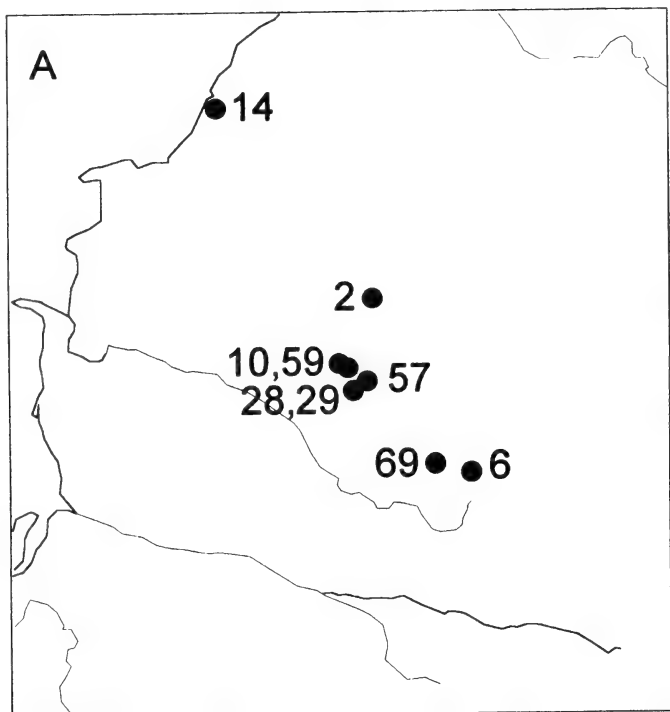
Fauna: *Corvus corone*

UK 20 "Derbyshire Peak Caves" (Derbyshire-Staffordshire)

Type: c

Source: Bramwell 1977a

Date: LP Devensian (Pre-LG)



Not exactly localized site in this area: 41

UNITED KINGDOM (UK)

Fauna: *Anas platyrhynchos*, *Aquila chrysaetos*, *Lagopus lagopus*, *Lagopus mutus* ?, *Alauda arvensis*, *Phoenicurus phoenicurus* ?, *Parus* sp.?, *Pyrrhula pyrrhula*, *Emberiza* sp.?

Date: LP LG

Fauna: *Podiceps* sp., *Anser anser*, *Melanitta fusca*, *Melanitta nigra*, *Bucephala clangula*, *Buteo buteo*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*?, *Perdix perdix*, *Porzana porzana*, *Crex crex*, *Fulica atra*, *Charadrius* sp., *Pluvialis apricaria*, *Vanellus vanellus*, *Calidris alpina*, *Calidris canutus*, *Gallinago gallinago*, *Bubo bubo*, *Asio flammeus*, *Dendrocopos major*, *Delichon urbica*, *Motacilla* sp., *Anthus* sp., *Oenanthe oenanthe*, *Turdus merula*, *Turdus pilaris*, *Turdus iliacus*, *Turdus viscivorus*, *Turdus* sp., *Sylvia* sp., *Parus* sp., *Parus major*, *Fringilla* sp., *Loxia curvirostra*, *Coccothraustes coccothraustes*, *Garrulus glandarius*, *Corvus monedula*, *Corvus corax*

Det.: Bramwell

Notes: collective lists of records from several caves in the Derbyshire Peak area

UK 21 Dog Hole Fissure (Derbyshire)

Alt.: 73

Type: c

Source: Jenkinson 1984a

Layer: 3a

Date: LP/Hol.? 14C=9,960±140 BP

Fauna: Muscicapidae sp., *Turdus iliacus*

Det.: Bramwell ?

UK 22 Dowel Cave (Derbyshire)

Type: c

Sources: Bramwell 1960b, 1977a, 1978; Jackson 1962

Date: LP-Holocene (Creswellian or younger) 14C=11,200±120 BP

Fauna: *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Tetrao urogallus*, *Perdix perdix*, *Porzana pusilla/parva*, *Vanellus vanellus*, *Calidris canutus*?, *Asio flammeus*, *Dendrocopos* cf. *major*, *Motacillidae* sp., *Troglodytes troglodytes* ?, *Turdus pilaris*, *Parus* sp., *Garrulus glandarius*, *Corvus monedula*, *Pyrrhula pyrrhula*

Det.: Bramwell

Stored: Stockport Museum and D. W. Yalden collection

Notes: also many Holocene birds at this site.

UK 23 East Runton (Norfolk)

Type: o

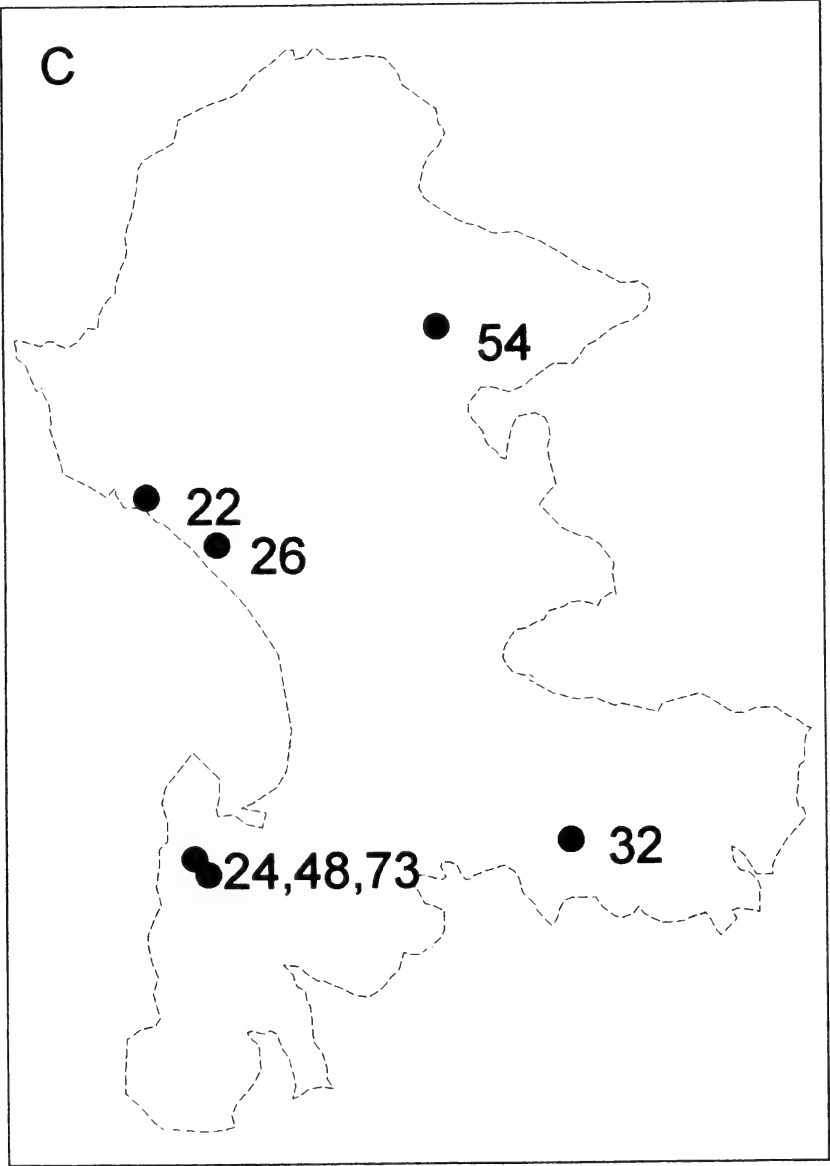
Sources: Bell 1915; Harrison 1979c, 1985; Lambrecht 1933; Lydekker 1891a; Newton 1880, 1891 (Newton 1882)

Layer: Forest Bed

Date: MP Forest Bed Pastonian MNQ21

Fauna: *Cygnus columbianus*, *Anas platyrhynchos*, *Bubo bubo*

Det.: Newton, Harrison



Not exactly localized site in this area: 20

UNITED KINGDOM (UK)

Stored: British Museum (Natural History) ?

Notes: Newton (1880, 1891) also recorded *Anser* cf. *anser* from this site

UK 24 Elder Bush Cave (Derbyshire)

Alt.: 250

Type: c

Sources: Bramwell 1964; Northcote 1980

Date: LP? LG? 14C=9,000±130, 10,600±110 BP

Fauna: *Anas platyrhynchos*, *Lagopus* sp.

Det.: Bramwell ?

Stored: Buxton Museum

UK 25 Fisherton (Wiltshire)

Type: o

Sources: Bell 1915; Lambrecht 1933

Date: LP ?

Fauna: *Anser anser*, *Anas platyrhynchos*

UK 26 Fox Hole Cave (Derbyshire)

Alt.: 380

Type: c

Source: Bramwell 1971

Layer: E

Date: LP LG LUP 14C=11970±120–12000±120 BP

Fauna: *Lagopus/Tetrao* sp., *Alauda arvensis*

Det.: Bramwell

Stored: Buxton Museum

UK 27 Gop Cave (Flintshire)

Type: c

Sources: Bell 1915; Jackson 1962; Lambrecht 1933

Date: LP-Holocene

Fauna: *Fulica atra*

Stored: Cardiff and Manchester

UK 28 Gough's Cave (Somerset)

Type: c

Sources: Harrison 1980a, 1986, 1987; Jackson 1962; Parry 1928

Layer: Spit 10–19

Date: LP LG spit 10–19 14C=11,970–12,800 BP (14 dates)

Fauna: *Cygnus cygnus*, *Falco peregrinus*, *Lagopus lagopus*, *Lagopus mutus*, *Columba oenas*, *Turdus pilaris*, *Turdus merula/torquata*

Det.: Bate; Harrison

Stored: British Museum (Natural History) and Cheddar Caves Museum

Notes: also known as Gough's New Cave; Spit 10–19 (LP) perhaps some Holocene admixture; reidentified by Harrison: *Cygnus olor*, *Tadorna* sp., *Aythya* sp., *Tetrao tetrix*, *Turdus viscivorus*

UK 29 Gough's Old Cave (Somerset)

Type: c

Source: Harrison 1989a

Date: LP-Hol LG-PB 14C=9,300–12,530 BP

Fauna: *Anser anser*, *Anas platyrhynchos*, *Anas crecca*, *Aythya fuligula*, *Mergus merganser*, *Aquila chrysaetos*, *Falco subbuteo*, *Tetrao tetrix*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Otis tarda*, *Vanellus vanellus*, *Columba livia*, *Dendrocopos major*, *Turdus torquatus*, *Turdus pilaris*, *Turdus philomelos*, *Turdus iliacus*, *Saxicola torquata/rubecula*, *Plectrophenax nivalis*, *Pyrhocorax pyrrhocorax*, *Corvus monedula*

Det.: Harrison

Stored: University of Bristol Spelaeological Society

UK 30 Grays Thurrock (Essex)

Type: o

Sources: Arduini et al. 1981; Bell 1915; Harrison & Walker 1977; Lambrecht 1933; Lydekker 1891a; Milne-Edwards 1867–71

Date: LP/MP "Ipswichian" s. l. (IS 7 ?)

Fauna: *Phalacrocorax carbo*, *Cygnus cygnus/olor*, *Cygnus cygnus*, *Anser anser*, *Branta ruficollis*

Det.: Lydekker; Harrison

Stored: British Museum (Natural History) and Museo Civico di Storia Naturale di Milano [swan's egg]

Notes: *Anas platyrhynchos* excluded by Harrison & Walker; also known as Grays

UK 31 Happaway Cave (Devonshire)

Type: c

Sources: Harrison 1980a, 1987

Layer: "Mixed"

Date: LP-Hol.

Fauna: *Puffinus griseus*, *Accipiter gentilis*, *Lagopus lagopus*, *Gallus gallus*, *Strix aluco*, *Turdus viscivorus*, *Turdus philomelos*, *Turdus iliacus*, *Turdus merula/torquata*, *Coccothraustes coccothraustes*, *Corvus corone/frugilegus*, *Corvus corax*

Det.: Harrison

Stored: British Museum (Natural History)

Notes: partly final Pleistocene but mainly Holocene.

UK 32 Hoe Grange Cave (Derbyshire)

Type: c

Sources: Arnold-Bemrose & Newton 1905; Bell 1915; Bramwell 1978; Lambrecht 1933; Wolf 1938–41

Date: LP/MP Eem or older interglacial

Fauna: *Asio flammeus*, *Turdus iliacus*, *Erithacus rubecula*

Notes: also known as Longcliffe Cave

UK 33 Ightham fissure (Kent)

Type: c

Sources: Bell 1915; Lambrecht 1933; Newton 1894, 1899; Wolf 1938–41

Date: LP-Hol.

Fauna: *Anser albifrons*, *Tadorna tadorna*, *Anas platyrhynchos*, *Anas penelope*, *Melanitta nigra*, *Hieraeetus pennatus/fasciatus*, *Falco peregrinus* ?, *Buteo buteo*, *Porzana porzana*, *Larus* sp.?, *Galerida cristata*, *Alauda arvensis*, *Eremophila alpestris* ?, *Hirundo rustica*, *Anthus pratensis* ?, *Motacilla alba*, *Prunella modularis* ?, *Oenanthe oenanthe*, *Turdus merula* ?, *Sturnus vulgaris*, *Lanius collurio* ?, *Passer domesticus* ?, *Fringilla coelebs* ?, *Plectrophenax nivalis*

Det.: Newton; Harrison

Stored: British Museum (Natural History)

Notes: species reidentified by Harrison: *Anas clypeata*, *Rallus aquaticus*, *Turdus philomelos*, *Fringilla coelebs*

UK 34 Ilford (Essex)

Alt.: 14

Type: o

Sources: Bell 1915; Harrison & Walker 1977; Lambrecht 1933; Lydekker 1891a; Stuart 1982

Date: LPMP "Ipswichian" s. l. (IS 7 ?)

Fauna: *Cygnus cygnus/olor*, *Anser anser*, *Anser albifrons*, *Anas platyrhynchos*, *Grus primigenia*

Det.: Lydekker; Harrison & Walker

Stored: British Museum (Natural History) and Institute of Geological Sciences

UK 35 Kents Cave (Devonshire)

Type: c

Sources: Bell 1915, 1922; Bramwell 1960b; Harrison 1980a, 1987; Lambrecht 1933, Lydekker 1891a; Northcote 1980; Wolf 1938–41

Layer: cave earth

Date: LP Middle-Late Paleolithic

Fauna: *Phalacrocorax aristotelis*, *Anser albifrons*, *Nyctea scandiaca*

Det.: Harrison

Stored: British Museum (Natural History)

Layer: ?

Date: LP

Fauna: *Tadorna tadorna*, *Tetrao urogallus*, *Bubo bubo*

Notes: also known as Kent's Cavern, Kent's Hole; *Anser fabalis* and *Tetrao tetrix* re-determined by Harrison; Northcote (1980) also cites *Anas platyrhynchos* and Bramwell (1960b) *Aythya fuligula* and *Melanitta nigra* from this site

UK 38 Kirkdale Cave (Yorkshire)

Type: c

Sources: Bell 1915, 1922; Harrison 1980a; Lambrecht 1933; Lydekker 1891a; Wolf 1938–41 (Giebel 1847)

Date: LP Ipswichian-Devensian

Fauna: *Anser anser*, *Anas* sp. ?, *Columba* sp. ?, *Corvus corax* ?, *Pyrhcorax pyrrhcorax*

Date: LP

Fauna: *Anas platyrhynchos*, *Anas penelope*, *Branta bernicla*, *Tetrao tetrix*, *Perdix perdix*, *Gallinago gallinago*, *Columba oenas*, *Alauda arvensis*, *Corvus corax*

Det.: Harrison; Buckland; Lydekker

Stored: British Museum (Natural History)

UK 39 Langwith Basset Cave (Derbyshire)

Alt.: 91

Type: c

Sources: Bell 1915; Jackson 1962; Jenkinson 1984a; Lambrecht 1933; Mullins 1913, Northcote 1980; Wolf 1938–41

Date: LP/Hol

Fauna: *Anser albifrons*, *Anser anser*, *Anas platyrhynchos*, *Aquila* sp.?, *Lagopus mutus*, *Lagopus lagopus*, *Perdix perdix*, *Phasianus colchicus*, *Gallus gallus*, *Columba livia*, *Columba palumbus*, *Bubo bubo*, *Strix aluco*, *Dendrocopos major*, *Alauda arvensis*, *Hirundo rustica*, *Motacilla* sp.?, *Anthus pratensis*, *Anthus spinoletta*, *Prunella modularis*, *Oenanthe oenanthe*?, *Turdus merula*, *Turdus philomelos*, *Turdus iliacus*, *Luscinia luscinia* ?, *Erithacus rubecula*, *Sitta europaea*, *Corvus corax*, *Corvus corone/fragilegus*, *Corvus monedula*, *Fringilla coelebs*, *Passer domesticus*

Det: Newton

Stored: University Museum Oxford

Notes: also known as Langwith Cave; this site was dug in a very unsatisfactory manner and Pleistocene and Holocene bones are clearly mixed

UK 40 Lawford (?)

Type: o

Sources: Bell 1915; Lambrecht 1933 (Giebel 1847)

Date: LP ?

Fauna: *Anser anser*

UK 41 Lea Valley (Middlesex ?)

Type: o

Sources: Bell 1915; Lambrecht 1933

Date: LP Middle Devensian ?

Fauna: *Gavia stellata*, *Mergus serrator*

Notes: "subarctic"

UK 42 Little Hoyle (Pembrokeshire)

Alt.: 20

Type: c

Sources: Bell 1915; David 1991; Green 1986; Lambrecht 1933

Date: LP

Fauna: *Aquila* sp., *Tetrao tetrrix*

Date: LP 14C=22,800±300 BP

Fauna: *Branta leucopsis*

Notes: 14C dating made on *Branta leucopsis* bone

UK 43 Merlin's Cave (Herefordshire)

Type: c

Sources: Bate 1901; Bell 1915; Harrison 1980a, 1987; Lambrecht 1933; Newton 1924a; Wolf 1938–41

Date: LP, probably Late Devensian

Fauna: *Anas platyrhynchos*, *Falco tinnunculus* ?, *Lagopus mutus*, *Lagopus lagopus*, *Perdix perdix* ?, *Columba* sp.?, *Turdus* cf. *viscivorus* ?, *Turdus merula/torquatus*, *Sturnus vulgaris*, *Garrulus glandarius*, *Corvus monedula*, *Pinicola enucleator*, *Loxia curvirostra*, *Passer domesticus*

Det.: Andrews; Bate; Harrison

Stored: British Museum (Natural History)

Date: LP

Fauna: *Melanitta perspicillata*, *Melanitta nigra*, *Mergus serrator*, *Mergus albellus*, *Falco tinnunculus*, *Lagopus mutus*, *Lagopus lagopus* ?, *Tetrao tetrrix*, *Perdix perdix*, *Phasianus colchicus* ?, *Rallus aquaticus*, *Fulica atra*, *Vanellus vanellus*, *Calidris canutus*, *Tringa ochropus*, *Lymnocryptes minimus*, *Pluvialis squatarola* ?, *Alle alle*, *Sterna hirundo*, *Columba oenas* ?, *Asio flammeus*, *Bubo bubo*, *Caprimulgus europaeus* ?, *Alcedo atthis*, *Picus viridis*, *Alauda arvensis* ?, *Hirundo rustica*, *Motacilla alba*, *Prunella modularis*, *Oenanthe oenanthe*?, *Erithacus rubecula* ?, *Saxicola rubetra* ?, *Turdus philomelos*, *Turdus viscivorus*, *Turdus merula*, *Sitta europaea*, *Sturnus vulgaris*, *Corvus monedula*, *Parus major*, *Pica pica*, *Fringilla coelebs*, *Carduelis flammea*, *Carduelis chloris*, *Coccothraustes coccothraustes* ?, *Passer domesticus*, *Plectrophenax nivalis*

Det.: Newton

Stored: Bristol Spelaeological Society

Notes: also known as Wye River Cave or Wye Valley Cave; birds not found by Harrison during restudy are denoted by a question mark.

UK 44 Minchin Hole (Glamorgan)

Alt.: 15

Type: c

Sources: Harrison 1977a, 1987

Layer: Bone Horizon

Date: LP Ipswichian s. s. (IS 5e)

Fauna: *Calidris alpina*, *Alca torda*, *Alauda arvensis*, *Sturnus vulgaris*

Det.: Harrison

Stored: British Museum (Natural History)

UK 45 Mundesley (Norfolk)

Type: o

Sources: Bell 1915; Harrison 1979c, 1985; Lambrecht 1933; Lydekker 1891a; Newton 1883

Date: MP "end of Forest Bed Series (=Cromerian)"; more likely early Anglian

Fauna: *Gavia stellata*, *Melanitta nigra*

Stored: British Museum (Natural History) ?

Notes: *Melanitta nigra* identified as *Anas clypeata* in Bell (1915)**UK 46 Neale's Cave (Devonshire)**

Type: c

Source: Harrison 1987

Layer: 2-3

Date: LP-Hol., probably transitional Devensian/Holocene

Fauna: *Tadorna tadorna*, *Anas platyrhynchos*, *Columba livia*, *Anthus pratensis*, *Turdus merula/torquatus*, *Turdus iliacus*, *Sylvia atricapilla*

Det.: Harrison

Stored: British Museum (Natural History)

UK 47 Ossiferous Fissure C8 (Derbyshire)

Alt.: 87

Type: c

Source: Jenkinson 1984a

Date: LP Mousterian ?

Fauna: *Ardea cinerea*, *Cygnus columbianus*, *Anser brachyrhynchus*, *Tadorna ferruginea*, *Melanitta nigra*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Vanellus vanellus*, *Pluvialis squatarola*, *Sterna* sp., *Columba oenas*, *Tyto alba*, *Alauda arvensis*, *Hirundo rustica*, *Hirundo rupestris*, *Anthus pratensis*, *Pica pica*, *Corvus monedula*, *Troglodytes troglodytes*, *Prunella modularis*, *Oenanthe oenanthe*, *Turdus merula*, *Turdus iliacus*, *Turdus philomelos*, *Turdus viscivorus*, *Turdus pilaris*, *Parus major*, *Aegithalos caudatus*, *Sitta europaea*, *Coccothraustes coccothraustes*, *Carduelis chloris*, *Loxia curvirostra*, *Pheucticus ludovicianus*

Det.: Bramwell ?

Notes: Creswell Crag, 1894 excavation

UK 48 Ossom's Cave (Staffordshire)

Alt.: 250

Type: c

Sources: Bramwell 1960b; Jackson 1962; Stuart 1982

Date: LP LG Late Devensian, Dryas 3 14C=10,590±70, 10,780±160, 10,600±140 BP.

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Crex crex*, *Bubo bubo*, *Turdus viscivorus*, *Corvus monedula*

Det.: Bramwell

Stored: Stoke City Museum

Notes: Bramwell and Jackson also report *Pluvialis* sp., *Calidris alpina*, *Strix aluco*, *Anthus* sp. and *Corvus corax*, but these are probably Holocene; also known as Ossum's Cave

UK 49 Ostend (Norfolk)

Type: o

Sources: Bell 1915; Harrison 1979c, 1985; Lydekker 1891a; Stuart 1982

Date: MP Cromerian s. s. pollen zone Cr IV (Late Cromerian)

Fauna: *Aythya ferina*, *Netta rufina*, *Melanitta nigra*, *Gallus europaeus*

Det.: Lydekker; Harrison

Stored: British Museum (Natural History)

Notes: *Gallus europaeus* originally identified as *Tetrao urogallus* by Lydekker

UK 50 Overstrand (Norfolk)

Type: o

Source: Harrison 1979c

Date: MP Pastonian MNQ 21

Fauna: *Phalacrocorax carbo*

Det.: Harrison

UK 51 Paviland (Glamorgan)

Type: c

Source: Bell 1922

Date: LP ?

Fauna: *Sula bassana*, *Uria aalge*, *Pyrhacorax pyrrhacorax*

Notes: also known as Goat's Cave

UK 52 Pin Hole Cave (Derbyshire)

Type: c

Sources: Bramwell 1960b; Jackson 1962; Jenkinson 1984a,b; Jenkinson & Bramwell 1984

Layer: level 0

Date: LP/Hol ? LUP

Fauna: *Ardea cinerea*, *Anas crecca*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Pluvialis squatarola*, *Pluvialis apricaria*, *Arenaria interpres*, *Calidris canutus*, *Cephus grylle*, *Alauda arvensis*, *Sturnus vulgaris*, *Corvus monedula*, *Prunella modularis*, *Saxicola rubetra*, *Phoenicurus phoenicurus*, *Erithacus rubecula*, *Turdus torquatus*, *Turdus merula*, *Turdus iliacus*, *Turdus philomelos*, *Turdus pilaris*, *Passer montana*, *Fringilla montifringilla*, *Emberiza schoeniclus*, *Plectrophenax nivalis*

Layer: level 1

Date: LP LUP

Fauna: *Ardea cinerea*, *Ciconia ciconia*, *Melanitta nigra*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Charadrius hiaticula*, *Nume-*

nius arquata, *Tyto alba*, *Strix aluco*, *Alauda arvensis*, *Hirundo rustica*, *Sturnus vulgaris*, *Garrulus glandarius*, *Pica pica*, *Corvus monedula*, *Sylvia atricapilla*, *Cinclus cinclus*, *Erithacus rubecula*, *Turdus torquatus*, *Turdus merula*, *Turdus iliacus*, *Turdus philomelos*, *Turdus viscivorus*, *Turdus pilaris*, *Parus major*, *Sitta europaea*, *Passer domesticus*, *Fringilla montifringilla*, *Pyrrhula pyrrhula*, *Coccothraustes coccothraustes*, *Miliaria calandra*

Layer: level 2

Date: LP LUP

Fauna: *Ardea cinerea*, *Anser anser*, *Branta leucopsis*, *Anser brachyrhynchus*, *Mergus merganser*, *Aquila chrysaetos*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Pluvialis squatarola*, *Numenius arquata*, *Fratercula arctica*, *Asio flammeus*, *Aegolius funereus*, *Dendrocopos minor*, *Alauda arvensis*, *Sturnus vulgaris*, *Garrulus glandarius*, *Nucifraga caryocatactes*, *Corvus monedula*, *Corvus frugilegus*, *Oenanthe oenanthe*, *Phoenicurus phoenicurus*, *Erithacus rubecula*, *Turdus merula*, *Turdus iliacus*, *Turdus philomelos*, *Turdus viscivorus*, *Turdus pilaris*, *Sitta europaea*, *Fringilla coelebs*, *Pyrrhula pyrrhula*, *Carduelis chloris*

Layer: level 3

Date: LP LUP

Fauna: *Ardea cinerea*, *Anser anser*, *Branta bernicla*, *Anser albifrons*, *Anas penelope*, *Anas crecca*, *Anas platyrhynchos*, *Pandion haliaetus*, *Falco columbarius*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Gallinula chloropus*, *Vanellus vanellus*, *Pluvialis squatarola*, *Pluvialis apricaria*, *Arenaria interpres*, *Columba oenas*, *Surnia ulula*, *Tyto alba*, *Alauda arvensis*, *Hirundo rustica*, *Sturnus vulgaris*

Layer: level 4

Date: LP LUP

Fauna: *Ardea cinerea*, *Cygnus columbianus*, *Anser brachyrhynchus*, *Anas platyrhynchos*, *Tadorna ferruginea*, *Melanitta nigra*, *Lagopus lagopus*, *Lagopus mutus*, *Perdix perdix*, *Vanellus vanellus*, *Pluvialis squatarola*, *Sterna* sp., *Columba oenas*, *Tyto alba*, *Alauda arvensis*, *Hirundo rustica*, *Hirundo rupestris*, *Anthus pratensis*, *Pica pica*, *Corvus monedula*, *Troglodytes troglodytes*, *Prunella modularis*, *Oenanthe oenanthe*, *Turdus merula*, *Turdus iliacus*, *Turdus philomelos*, *Turdus viscivorus*, *Turdus pilaris*, *Parus major*, *Aegithalos caudatus*, *Sitta europaea*, *Coccothraustes coccothraustes*, *Carduelis chloris*, *Loxia curvirostra*, *Pheucticus ludovicianus*

Layer: level 5

Date: LP EUP

Fauna: *Branta leucopsis*, *Anser brachyrhynchus*, *Mergus merganser*, *Falco tinnunculus*, *Lagopus mutus*, *Lagopus lagopus*, *Perdix perdix*, *Arenaria interpres*, *Numenius phaeopus*, *Tringa nebularia*, *Asio flammeus*, *Alauda arvensis*, *Hirundo rustica*, *Sturnus vulgaris*, *Corvus monedula*, *Phoenicurus phoenicurus*, *Erithacus rubecula*, *Turdus iliacus*, *Turdus philomelos*, *Plectrophenax nivalis*

Layer: level 6

Date: LP Mousterian

Fauna: *Anas querquedula*, *Aythya fuligula*, *Lagopus lagopus*, *Lagopus mutus*, *Tetrao tetrix*, *Perdix perdix*, *Larus canus*, *Alcedo atthis*, *Corvus monedula*, *Phoenicurus*

phoenicurus, *Turdus torquatus*, *Turdus merula*, *Turdus philomelos*, *Turdus viscivorus*, *Coccothraustes coccothraustes*, *Plectrophenax nivalis*

Layer: level 7

Date: LP Mousterian

Fauna: *Ardea cinerea*, *Falco tinnunculus*, *Lagopus mutus*, *Lagopus lagopus*, *Apus melba*, *Alauda arvensis*, *Carduelis cannabina*, *Sturnus vulgaris*, *Corvus monedula*, *Corvus corax*, *Turdus merula*, *Turdus viscivorus*, *Pica pica*, *Corvus monedula*, *Corvus corax*, *Oenanthe oenanthe*, *Phoenicurus phoenicurus*, *Turdus torquatus*, *Turdus merula*, *Turdus iliacus*, *Turdus philomelos*, *Turdus viscivorus*, *Passer domesticus*, *Fringilla montifringilla*, *Loxia curvirostra*, *Miliaria calandra*, *Pheucticus ludovicianus*

Layer: level 8

Date: LP Mousterian

Fauna: *Branta bernicla*, *Anser brachyrhynchus*, *Tadorna ferruginea*, *Falco tinnunculus*, *Lagopus mutus*, *Lagopus sp.*, *Corvus monedula*, *Corvus corone*

Layer: level 9

Date: LP Mousterian

Fauna: *Ciconia ciconia*, *Branta bernicla*, *Anser anser*, *Anser albifrons*, *Anas platyrhynchos*, *Melanitta nigra*, *Lagopus lagopus*, *Lagopus mutus*, *Anthropoides virgo*, *Gallinago gallinago*, *Columba palumbus*, *Corvus corone*, *Corvus corax*, *Turdus iliacus*

Notes: *Anthropoides virgo* identified by Cowles

Layer: level 10

Date: LP Mousterian

Fauna: *Anser brachyrhynchus*, *Falco tinnunculus*, *Lagopus mutus*, *Lagopus lagopus*, *Gallinago gallinago*, *Alauda arvensis*, *Corvus corax*, *Passer domesticus*

Layer: level 11

Date: LP Mousterian

Fauna: *Gavia arctica*, *Ardea cinerea*, *Branta bernicla*, *Anas crecca*, *Melanitta nigra*, *Falco tinnunculus*, *Lagopus mutus*, *Lagopus sp.*, *Calidris canutus*, *Asio flammeus*, *Alauda arvensis*, *Bombycilla garrulus*, *Pica pica*, *Corvus corax*, *Turdus philomelos*

Layer: level 12

Date: LP Mousterian 14C=38,850±2500 BP

Fauna: *Anser brachyrhynchus*, *Melanitta nigra*, *Mergus merganser*, *Accipiter gentilis*, *Buteo lagopus*, *Lagopus mutus*, *Lagopus sp.*, *Apus melba*, *Lullula arborea*, *Corvus corax*

Layer: level 13

Date: LP Mousterian

Fauna: *Turdus iliacus*

Layer: level 15

Date: LP Mousterian

Fauna: *Anas platyrhynchos*, *Mergus merganser*, *Lagopus mutus*, *Corvus corax*

Layer: unstratified

Date: ?

Fauna: *Gavia arctica*, *Ardea cinerea*, *Anser anser*, *Branta bernicla*, *Anser brachyrhynchus*, *Cygnus columbianus*, *Anas penelope*, *Anas platyrhynchos*, *Melanitta nigra*, *Mergus merganser*, *Falco tinnunculus*, *Lagopus mutus*, *Lagopus lagopus*, *Gallus gallus*, *Perdix perdix*, *Arenaria interpres*, *Numenius arquata*, *Dendrocopos minor*, *Alauda ar-*

vensis, *Calidris canutus*, *Streptopelia turtur*, *Tyto alba*, *Sturnus vulgaris*, *Garrulus glandarius*, *Corvus monedula*, *Corvus corax*, *Erithacus rubecula*, *Turdus merula*, *Turdus philomelos*, *Turdus pilaris*, *Passer domesticus*, *Carduelis cannabina*, *Coccothraustes coccothraustes*

Det.: Bramwell

Note: unfortunately this very rich and interesting site was dug in a way that makes assignment of remains to individual layers rather uncertain; furthermore some of the identifications are very questionable; 14C dates on bones from this site (uncertain levels) range from $22,500 \pm 700$ to $42,200 \pm 3,000$ BP

UK 53 Potter's Cave (Pembrokeshire)

Type: c

Source: David 1991

Date: LP probably LG

Fauna: *Puffinus puffinus*, *Anser* sp., *Anas* sp., *Falco peregrinus/rusticolus*, *Fratercula arctica*, *Columba palumbus*

Det.: Bramwell

Notes: the seabirds are probably Holocene

UK 54 Ravencliffe cave (Derbyshire)

Type: c

Sources: Bell 1915; Harrison 1980a; Lambrecht 1933

Date: ?

Fauna: *Aquila* sp.

Date: LP-Holocene

Fauna: *Anser anser*, *Tetrao urogallus*, *Lagopus lagopus*, *Perdix perdix*, *Columba oenas*, *Turdus merula*, *Turdus philomelos*, *Corvus monedula*, *Corvus corone/frugilegus*, *Corvus corax*

Det.: Harrison

Stored: British Museum (Natural History) and Buxton Museum, Derby

UK 55 Robin Hood's Cave (Derbyshire)

Alt.: 85

Type: c

Sources: Bramwell 1977b; Campbell 1977; Jenkinson 1984a

Layer: LSB

Date: LP LG LUP "Zone I" 14C= $10,590 \pm 90$ BP

Fauna: *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Asio* cf. *flammeus*, *Turdus* cf. *torquatus*, *Corvus monedula*, *Emberizidae*/*Fringillidae*

Layer: OB

Date: LP LG LUP Zone II 14C= $10,390 \pm 90$ BP

Fauna: *Anas* cf. *platyrhynchos*, *Bucephala clangula*, *Accipiter gentilis*, *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus mutus*, *Dendrocopos* cf. *major*, *Turdus* cf. *torquatus*, *Turdus* cf. *pilaris*, *Garrulus* cf. *glandarius*, *Corvus monedula*

Notes: Jenkinson transposes OB and USB and adds *Tetrao tetrix*

Layer: USB

Date: LP LG LUP/Meso. Zone III ? (Dryas 3)

Fauna: *Accipiter gentilis*, *Lagopus lagopus*, *Lagopus* sp., *Asio flammeus*, *Emberizidae*/Fringillidae

Layer: B/A

Date: LP LUP "Full Glacial"? 14C=40,000 BP

Fauna: *Falco tinnunculus*, *Lagopus lagopus*, *Lagopus* sp., *Pluvialis* cf. *squatarola*, *Pica* cf. *pica*

Layer: A

Date: LP Middle Paleolithic TL=100,000 BP

Fauna: *Falco tinnunculus*, *Lagopus* cf. *lagopus*, *Lagopus mutus*, *Garrulus* cf. *glandarius*

Notes: Jenkinson (1984) mentions *Corvus monedula* instead of *Garrulus* cf. *glandarius*

Det.: Bramwell

UK 56 Seaton (Aberdeen)

Type: o

Sources: Bell 1915; Lambrecht 1933

Date: LP ? "red Arctic clay"

Fauna: *Melanitta nigra*

UK 57 Soldier's Hole (Somerset)

Type: c

Sources: Bramwell 1960a,b, 1977b; Burdukiewicz 1986; Campbell 1977; Harrison 1987, 1988; Jackson 1931, 1962; Parry 1928

Layer: 3–10 (=B)

Date: LP LG Creswellian ca. 10,000–12,500 BP? 14C=9,930±210 BP (l. 3)

Fauna: *Anas crecca*, *Anas platyrhynchos*, *Anas penelope*, *Haliaeetus albicilla*, *Falco columbarius*, *Asio flammeus*, *Lagopus lagopus*, *Lagopus mutus*, *Limosa limosa*, *Tetrao tetrix*, *Perdix perdix*, *Pica pica*, *Turdus pilaris*, *Turdus torquatus/merula*, *Bonasa bonasia*, *Columba livia*, *Asio otus*, *Prunella modularis*, *Turdus philomelos*, *Corvus corax*, *Corvus monedula*, *Plectrophenax nivalis*

Layer: 11–21

Date: LP Early-Middle Devensian layer 12–15=30–50,000 BP; may extend into EUP.

Fauna: *Anser albifrons*, *Anser anser*, *Haliaeetus albicilla*, *Lagopus mutus*, *Stercorarius longicaudus*, *Rissa tridactyla*

Det.: Jackson; Bramwell; Harrison; Bate

Stored: Cheddar Caves Museum

Notes: reidentified by Harrison: *Anser* cf. *erythropus*, *Cygnus* cf. *cygnus*, *Lagopus lagopus*, *Corvus corax*, *Columba* cf. *oenas*, *Gallinula chloropus*, *Garrulus glandarius*, *Larus canus*, *Turdus viscivorus*; Jackson (1931) also mentions *Chloris chloris*.

UK 58 Stratheden (Scotland)

Type: o

Sources: Bell 1915; Lambrecht 1933

Date: LP ? "Arctic clay"

Fauna: *Somateria molissima*, *Melanitta perspicillata***UK 59 Sun Hole (Somerset)**

Type: c

Source: Bramwell 1957

Layer: foot 1-7

Date: LP LG 14C = $12,210 \pm 160$, $12,378 \pm 150$ BPFauna: *Lagopus* sp., *Hirundo* sp., *Turdus* sp., *Turdus merula*, *Corvus corax*, *Corvus monedula*, *Pica pica*, *Fringilla* sp.

Det.: Bramwell

Stored: Bristol Spelaeological Society

UK 60 Swanscombe (Barnsfield Pit) (Kent)

Alt.: 33

Type: o

Sources: Harrison 1979b, 1985; Parry 1996; Stuart 1982; Swinton 1964

Layer: Middle Gravel

Date: MP 326+99-54 KA BP "Base of upper middle gravels", probably 360-420 KA BP.

Fauna: *Anser* cf. *albifrons*, *Branta* cf. *leucopsis*

Layer: Lower Gravel

Date: MP "Hoxnian" zone Ho II

Fauna: *Anas clypeata*, *Mergus serrator*, *Sylvia borin*

Layer: Lower Loam

Date: MP "Hoxnian" zone Ho II, TL = 202 ± 15 - 228 ± 23 KA ("Loams"); probably 360-420 KA BPFauna: *Phalacrocorax carbo*, Anatidae sp., *Bucephala clangula*, *Bubo bubo*, *Serinus serinus*

Layer: Lower Loam/Lower Gravel

Date: MP "Hoxnian" zone Ho II

Fauna: Anatidae sp., *Pandion haliaetus*, *Columba palumbus*

Layer: unstratified

Date: MP

Fauna: *Melanitta nigra*

Det.: Harrison; Parry

Stored: British Museum (Natural History)

UK 61 Swanscombe (Dierdens Pit, Ingress Vale) (Kent)

Alt.: 33

Type: o

Sources: Harrison 1979b, 1985; Stuart 1982 (Stopes 1904)

Date: MP "Hoxnian" zone Ho III

Fauna: *Tetrao urogallus*

Det.: Harrison

Stored: British Museum (Natural History)

Notes: Harrison (1985) dates site to the Wolstonian; Stopes recorded *Anas* sp. from Ingress Vale

UK 62 Thatcham (Berkshire)

Type: o

Sources: Smith 1992; Stuart 1982

Date: LP-Hol ($10,365 \pm 170$ – $9,480 \pm 160$ BP)

Fauna: *Anas platyrhynchos*, *Anas querquedula/crecca*, *Bucephala clangula*, *Mergus albellus*, *Grus grus*, *Turdus* sp.

UK 63 Torbryan Caves (collectively) (Devonshire)

Type: c

Sources: Harrison 1980a, 1987

Date: LP-Holocene

Fauna: *Tadorna tadorna*, *Anas platyrhynchos*, *Lagopus mutus*, *Lagopus lagopus*, *Coturnix coturnix*, *Lymnocyrtus minimus*, *Hirundo rustica*, *Galerida cristata*, *Alauda arvensis*, *Erithacus rubecula*, *Turdus merula/torquatus*, *Turdus pilaris*, *Turdus viscivorus*, *Turdus philomelos*, *Pinicola enucleator*, *Coccothraustes coccothraustes*, *Sturnus vulgaris*, *Garrulus glandarius*, *Corvus monedula*, *Corvus corax*

Det.: Harrison

Stored: British Museum (Natural History)

UK 64 Tornewton Cave (Devonshire)

Alt.: 76

Type: c

Sources: Harrison 1980b, 1987; Stuart 1982; Stewart 1996

Layer: Reindeer stratum

Date: LP Mid-Devensian

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Tetrax tetrax*, *Sturnus* spp., *Corvus corone/frugilegus*

Layer: Glutton stratum

Date: LP Devensian, but with older material incorporated

Fauna: *Ciconia* cf. *nigra*, *Falco* sp., cf. *Perdix perdix*, *Corvus corax*

Layer: Glutton/Bear stratum

Date: LP Mixed/Transitional Devensian/IS 5e

Fauna: *Ciconia* cf. *nigra*, *Corvus corone/frugilegus*

Layer: Hyena stratum

Date: LP IS 5c

Fauna: *Anas* sp., *Falco* sp., *Alaudidae* sp., *Hirundo* sp., *Sturnus* spp., *Corvus corax*

Layer: Otter stratum

Date: MP IS 7

Fauna: *Tadorna tadorna*

Det: Harrison; Stewart

Stored: British Museum (Natural History)

UK 65 Uphall (Essex)

Type: o

Source: Harrison & Walker 1977

Date: LP ? "Ipswichian" s. l.

Fauna: *Anas platyrhynchos*

Det.: Harrison & Walker

Notes: near Ilford

UK 66 Walthamstow (Essex)

Type: o

Sources: Bell 1915, 1922; Harrison & Walker 1977; Lambrecht 1933; Lydekker 1891a; Northcote 1980

Date: LP Upper Devensian Interstadial

Fauna: *Anas platyrhynchos*, *Aythya fuligula*, *Haliaeetus albicilla*, *Anser anser*

Det.: Lydekker; Harrison

Stored: British Museum (Natural History)

Notes: *Pandion haliaetus* excluded by Harrison & Walker (1977); Bell reported *Branta bernicla* instead of *Anser anser*

UK 67 Waterhall farm (Hertfordshire)

Type: o

Source: Harrison & Walker 1977

Date: MP/LP "Ipswichian" s. l.

Fauna: *Anas strepera*

Det.: Harrison & Walker

Stored: British Museum (Natural History)

UK 68 West Runton (Suffolk)

Alt.: 5

Type: o

Sources: Bell 1915; Harrison 1979c, 1985; Lambrecht 1933; Newton 1880, 1891; Stuart 1975

Layer: Upper Freshwater Bed

Date: MP Cromerian s. s., pollen zone Cr II

Fauna: *Phalacrocorax carbo*, *Cygnus columbianus*, *Anser anser*, *Anas platyrhynchos*, *Anas penelope*, *Netta rufina*, *Aythya fuligula*, *Aythya ferina*, *Bucephala clangula*, *Mergus serrator*, *Mergus albellus*, *Aix galericulata*, *Somateria gravipes*, *Gallinula chloropus*, *Tringa ochropus*, *Turdus* cf. *merula*, *Turdus philomelos*, *Turdus iliacus*, *Sitta europaea*, *Sturnus* cf. *vulgaris*, *Garrulus* cf. *glandarius*

Det.: Newton; Harrison

UK 69 Westbury-sub-Mendip (Somerset)

Alt.: 240

Type: c

Source: Andrews 1990

Layer: 11/4

Date: MP Post-Cromerian, probably IS 12

Fauna: *Athene noctua*, *Asio flammeus*

Layer: 15/5

Date: MP Post-Cromerian, probably IS 12

Fauna: *Anas platyrhynchos*, *Lagopus lagopus*, *Lagopus mutus*, *Bonasa bonasia*, *Gallinago media*

Layer: ?

Date: MP Post-Cromerian, probably IS 12

Fauna: *Lagopus lagopus*, *Lagopus mutus*, *Athene noctua*, *Hirundo rustica*

Det.: Harrison

UK 71 Yarm hill, Southwold (Suffolk)

Type: o

Sources: Bell 1915; Harrison 1978, 1985; Lambrecht 1933; Newton 1891

Date: LPI/EP Norwich crag

Fauna: *Clangula hyemalis*

Det: Newton; Harrison

Stored: Institute of Geological Sciences, London

Notes: identified as *Uria aalge* by Newton; also *Alle alle* mentioned by Newton (1891) but rejected by Harrison as indeterminable; this site is very loosely dated as the Norwich Crag deposits are now thought to date from the Ludhamian to the Bramertonian (ca. 0.7–2.0 MA BP)

UK 72 Hoxne (Suffolk)

Type: o

Source: Stuart et al. 1993

Layer: Bed 4

Date: MP Hoxnian Interglacial = IS 9?

Fauna: cf. *Anas platyrhynchos*

Det: Stuart

UK 73 Wetton Mill Rock Shelter (Staffordshire)

Type: c

Source: Bramwell 1976

Layer: c

Date: LP LG Dryas 3?

Fauna: *Ardea cinerea*, *Anser* cf. *anser*, *Anas* cf. *platyrhynchos*, *Lagopus lagopus*, *Lagopus mutus* ?, *Tetrao tetrix*, *Tetrao urogallus*, *Perdix perdix*, *Garrulus glandarius* ?

Det: Bramwell

UK 74 Broken Cavern (Devonshire)

Type: c

Source: Stewart 1996

Date: LP

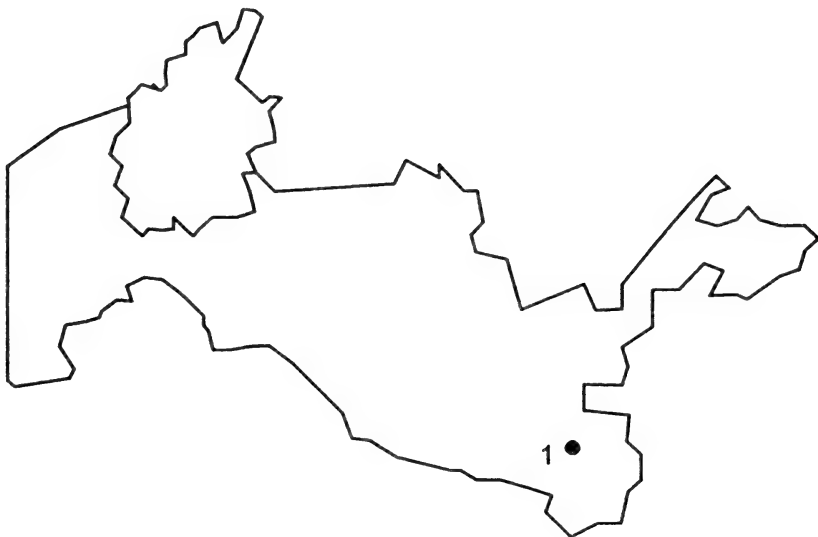
Fauna: cf. *Turdus pilaris*

Det: Stewart

UZBEKISTAN

UZ 1 Teshik-Tash

Alt.: 1,500



UZBEKISTAN (UZ)

Type: c

Source: Burchak-Abramovich 1975 (Suslova 1949)

Date: LP Mousterian

Fauna: *Anas* sp.?, *Falco tinnunculus*, *Alectoris graeca*, *Columba rupestris*, *Columba livia*, *Columba* sp., *Otus* cf. *scops*, *Asio* sp.?, *Apus apus*, *Apus melba*, *Motacilla* sp.?, *Anthus* sp.?, *Turdus* cf. *merula*, *Corvus frugilegus*, *Corvus* sp., *Pyrrhocorax pyrrhocorax*, *Miliaria calandra*

Det.: Suslova

OFFSHORE SITE

North Sea

Type: o

Source: Erdbrink 1993

Date: LP/Hol

Fauna: *Cygnus* cf. *columbianus*

Det.: Erdbrink

SYSTEMATIC LIST

STRUTHIONIFORMES

Struthio camelus* Linnaeus, 1758*Ostrich**

Stratigraphic range: Middle/Late Pleistocene (MNQ 23/25)–present

?: AL 2–3; MG 1–2; RO 9, 31, 39

MP: EG 12

LP: EG 5, 36; IS 4, 5, 25, 26; JO 8

The records from Mongolia and Russia presumably refer to *Struthio anderssoni* though they have been published as *Struthio camelus*. A large number of ostrich species has been described from the Neogene and Pleistocene of Africa and Eurasia, some based solely on eggshell remains (cf. Brodkorb 1963; Kurochkin & Lungu 1970; Olson 1985). It seems clear that many, if not most, of these are synonyms but in this catalogue I have simply cited all taxa which have been reported from the Pleistocene, without trying to judge their validity, pending a badly-needed general revision of the Neogene and Pleistocene ostriches.

+*Struthio pannonicus* (Kretzoi), 1954

Stratigraphic range: Late Pliocene/Early Pleistocene (MN 18)

EP: HU 25

Originally described as a distinct genus, *Pachystruthio*, this species has been synonymized with *Struthio chersonensis* Brandt, 1873 based on similarities in the eggshells (Mikhailov & Kurochkin, *vide* Mlíkovský 1992b).

+*Struthio dmanisensis* Burchak-Abramovich & Vekua, 1990

Stratigraphic range: Late Pliocene/Early Pleistocene (MN 18)

EP: GE 4

+*Struthio anderssoni* Lowe, 1931

Stratigraphic range: Middle Pleistocene (MNQ 23/24)–Late Pleistocene (MNQ 26)

?: CI 23, 26, 38

MP: CI 14, 17

LP: CI 2–4, 7, 19, 21, 24–25, 30–33, 39, 42, 44–46, 50–51, 54–55; RO 37 (cf)

No post-Pleistocene remains of *Struthio anderssoni* seem to be known. However ostriches are certainly mentioned and depicted in Chinese records from the Han and T'ang dynasties (Laufer 1926). These were obtained from the west (Persia, Tocharia, Sogdiana) and it has been supposed that these were *Struthio camelus syriacus*, derived ultimately from Mesopotamia, but the possibility that

relict populations of *Struthio anderssoni* survived into historical times somewhere in central Asia should not be entirely discounted.

***Struthio* sp.**

?: AL 4?; CI 43, 48; LB 1?

EP: RO 22; TU 1; UR 36

MP: CI 8, 11; EG 3, 5–8, 10–11; MR 1?, 2

LP: CI 27, 34, 40–41, 52; EG 4–5, 9, 13, 19–27, 31, 37–39; IS 1, 3, 8, 12–14, 21–22, 24, 27, 29–33, 36; JO 2, 4, 7; MR 3, 5; SA 1–6; SY 1

These records are largely based on eggshell remains. They are presumably from *Struthio camelus* in North Africa and the Near East and from *Struthio anderssoni* in Central Asia and the Far East.

Note on *Psammornis*: The name *Psammornis* has been used for fragments of eggshells much larger and thicker than those of *Struthio*. *Psammornis rothschildi* Andrews, 1911 from near Touggourt in southern Algeria is from an egg ca. 250 x 190 mm (Andrews 1911; Lowe 1931; Sauer 1969) and *Psammornis* sp. from Shuqqat al Kalfat in Rub al Khali (Saudi Arabia) is ca. 210 x 170 mm (Lowe 1933; Sauer 1969). Further eggshell remains which may belong to the same taxon have been recorded from Temassinin in southern Algeria and Cape Blanco near the Atlantic coast (Schönwetter 1942, *vide* Sauer 1969). Ennouchi (1952) also reported eggshells from a bird larger than *Struthio camelus* from the Pleistocene of Rabat, Morocco. *Psammornis libycus* Moltoni, 1928, based on a single eggshell fragment from Giarabub, Libya (LB 1), on the other hand, is probably from an ordinary ostrich egg (Sauer 1969). None of the finds is even loosely dated; the records could be Pleistocene or older. It, however, seems clear that in a not-too-distant past a (presumably) flightless bird considerably larger than *Struthio camelus* existed in the Saharo-Arabian desert zone. No skeletal remains of this form seems to be known unless it is *Struthio barbarus* Arambourg, 1979 from the Pliocene of Aïn Bocherit, Algeria. This species was, however, only moderately larger than *Struthio camelus* (Arambourg 1979).

GAVIIFORMES

***Gavia stellata* (Pontoppidan), 1763**

Red-throated Loon

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

?: JA 15

MP: UK 45

LP: BRD 106; CZ 6; IR 9?, 11; IT 3, 40, 46?; PG 3; RM 4 (cf); RO 17; SP 41, 64; UK 41

Gavia cf. *stellata* has been recorded in ca. 860 KA-old deposits from Alamosa County, Colorado (Benson pers. com.).

***Gavia arctica* (Linnaeus), 1758**

Black-throated Loon

Stratigraphic range: Late Pleistocene (MNQ 26)–present

?: UK 52

LP: BRD 96, 131; FR 165; IT 40, 46?; UK 52; UR 7

Gavia arctica/immer

LP: FR 165

***Gavia pacifica* (Lawrence), 1858**

Pacific Loon

?: JA 19 (cf)

In North America *Gavia pacifica* has a fossil record going back at least to IS 5e (San Pedro, California (Jefferson 1991)).

***Gavia immer* (Brünnich), 1764**

Great Northern Loon

Stratigraphic range: Early/Middle Pleistocene (MNQ 19/21)–present

EP: RO 29

LP: FR 4; IR 6

There is also a record from the early Irvingtonian of Leisey Shell Pit, Florida (Emslie 1992).

***Gavia* sp.**

EP: UR 32

LP: BRD 58, 147?; IT 14; SP 62

PODICIPEDIFORMES

***Tachybaptus ruficollis* (Pallas), 1764**

Little Grebe

Stratigraphic range: Late Pleistocene (MNQ 26)–present

EP: SP 66 (cf)

LP: BRD 12?, 135?; CR 12–13; EG 17, 34; FR 144; IR 6, 9; IS 18; IT 73

Recorded from the early Pliocene (ca. 5 MA BP) of Langebaanweg, South Africa (Olson 1994).

***Podiceps cristatus* (Linnaeus), 1758**

Great Crested Grebe

Stratigraphic range: Early Pleistocene (MNQ 19)–present

EP: IS 35

MP: CZ 33 (cf), IT 50, 118

LP: AU 21; EG 14; GE 8, 12; IR 4, 6–7, 9; IS 10, 18; IT 40, 46

Podiceps cristatus/grisegena

LP: SP 7

***Podiceps grisegena* (Boddaert), 1783**

Red-necked Grebe

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

MP: BRD 42, CZ 33 (aff), 41

LP: CZ 6; IT 46 (aff); RM 3–4

Podiceps cf *grisegena* has been recorded in ca. 740 KA old deposits from Alamosa County, Colorado (Benson pers. com.).

Podiceps auritus* (Linnaeus), 1758*Horned Grebe**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

EP: IS 35

MP: AZ 2

LP: CI 41; CR 13; FR 15, 44, 144; HU 38; IT 3, 40, 46; UR 1

There is a record from the late Blancan (late Pliocene) of Sand Draw, Nebraska (Ducey 1992).

Podiceps auritus/grisegena

LP: FR 133

Podiceps auritus/nigricollis

LP: RO 26; SP 7

Podiceps nigricollis* C. L. Brehm, 1831*Black-necked Grebe**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

EP: HU 32 (aff)

MP: CZ 33 (cf)

LP: GE 18 (cf); IS 18; SY 2; UR 1

This species, while remarkably rare in the Palearctic fossil record, has a fairly good fossil record in North America, going back at least to IS 5e (San Pedro, California (Jefferson 1991)). It has even been reported from the late Hemphillian (late Miocene/early Pliocene) of Edson, Kansas (Becker 1987). Such an old record of an extant species however requires confirmation. There is also a record from the late Blancan/early Irvingtonian of Vallecito Creek, California (Becker 1987).

***Podiceps* sp.**

?: JA 15

LP: CY 1; IT 40; SP 2; UK 20

PROCELLARIIFORMES***Diomedea nigripes* Audubon, 1849****Black-footed Albatross**

No fossil record in the Palearctic, but reported from IS 5e in North America (San Pedro, California (Jefferson 1991)).

Diomedea albatrus* Pallas, 1769*Short-tailed Albatross**

No fossil record in the Palearctic, but reported from IS 5e in North America (San Pedro, Playa del Rey, California (Jefferson 1991)).

***Diomedea* sp.**

?: JA 2

Several species of albatrosses occurred in the North Atlantic during the Pliocene, one of which, *Diomedea anglica*, has been found in the Palearctic (Eng-

land), but these records are from the Late Pliocene (Harrison & Walker 1978a). A supposedly Late Pleistocene record of Wandering Albatross (*Diomedea exulans*) from the London area is actually a recent bird (Harrison & Walker 1978b).

***Fulmarus glacialis* (Linnaeus), 1761**

Northern Fulmar

Stratigraphic range: Late Pleistocene (MNQ 26)–present
LP: NO 1–2

The striking rarity of Fulmar fossils in the West Palearctic is in contrast to a relatively good record from the west coast of North America, going back at least to IS 5e (San Pedro, California (Jefferson 1991)). It is worth noting that while the Atlantic Fulmar was an arctic/subarctic species until quite recently (cf Fisher 1952a,b), the Pacific Fulmar apparently ranged south to southern California even during the very warm last interglacial. The two Norwegian records are indeed from the only two truly arctic seabird avifaunas in the Palearctic fossil record.

***Pterodroma hypoleuca* (Salvin), 1888**

Bonin Petrel

No fossil record from the Palearctic, but *Pterodroma* cf *hypoleuca* has been reported from the Middle Pleistocene of Ulupau Head, Oahu by James (1987).

***Pterodroma leucoptera* (Gould), 1844**

Gould's Petrel

Stratigraphic range: Late Pleistocene (MNQ 26)?–present
?: JA 4

***Calonectris diomedea* (Scopoli), 1769**

Cory's Shearwater

Stratigraphic range: Late Pleistocene (MNQ 25)–present
?: IT 37
LP: FR 11, 33; IT 3, 13, 59; PG 2; SP 22, 27, 41, 53, 61; UK 3

***Calonectris leucomelas* (Temminck), 1835**

Streaked Shearwater

Stratigraphic range: Late Pleistocene (MNQ 26)?–present
?: JA 4

***Puffinus gravis* (O'Reilly), 1818**

Great Shearwater

Stratigraphic range: Late Pleistocene (MNQ 26)–present
LP: SP 41

***Puffinus griseus* (J. F. Gmelin), 1789**

Sooty Shearwater

Stratigraphic range: Late Pleistocene (MNQ 26)–present
?: IT 37; JA 15
LP: FR 165; IT 79 (cf); SP 41; UK 31

Reported from IS 5e (equivalent to MNQ 25) in North America (San Pedro and Playa del Rey, California (Jefferson 1991)).

***Puffinus tenuirostris* (Temminck), 1835**

Short-tailed Shearwater

No fossil record from the Palearctic, but common at Late Pleistocene/Holocene sites in Australia (Baird et al. 1991).

Puffinus puffinus* (Brünnich), 1764*Manx Shearwater**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

?: IT 7

LP: CY 1; IT 3, 13; NO 1; SP 41, 53, 62, 79; UK 53

Some of these are likely to be *Puffinus yelkouan* which was not recognised as a separate species at the time when determinations were made. *Puffinus puffinus newelli* has been reported from the Middle Pleistocene of Ulupau Head, Oahu by James (1987).

Puffinus yelkouan* (Acerbi), 1877*Mediterranean Shearwater**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

?: IT 7, 37

LP: GR 4; SP 41, 64

***Puffinus yelkouan mauretanicus* Lowe, 1921**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: SP 27, 61

+ *Puffinus holeae* Walker, Wragg & Harrison, 1990

Stratigraphic range: Late Pleistocene (MNQ 26)–subrecent

LP: PG 3; SP 67

+ *Puffinus nestori* Alcover, 1989

Stratigraphic range: Late Pliocene/Early Pleistocene (MN 18)

EP: SP 85

***Puffinus* sp.**

LP: IT 40

Hydrobates pelagicus* (Linnaeus), 1758*European Storm-petrel**

Stratigraphic range: Middle Pleistocene (MNQ 23)–present

?: IT 37

MP: FR 177

LP: SP 27, 61

Oceanodroma leucorhoa* (Vieillot), 1817*Leach's Storm-petrel**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: FR 171

PELECANIFORMES***Sula sula* (Linnaeus), 1766****Red-footed Booby**

No fossil record from the Palearctic but has been reported from the Middle Pleistocene of Ulupau Head, Oahu by James (1987).

Sula bassana* (Linnaeus), 1758*Northern Gannet**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: GR 15; IT 2–3; PG 3; SP 41, 43, 79; UK 51

***Phalacrocorax carbo* (Linnaeus), 1758** **Great Cormorant**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: JA 6, 10

EP: IS 35

MP: AZ 2; BRD 114; CZ 33 (cf); IT 83, 113; UK 30, 50, 60, 68

LP: CH 9; EG 16; IR 9; IS 18; IT 3, 40, 47; SP 41, 53?, 68, 79; UK 14

There is also an early Pleistocene (1.15–1.7 MA BP) record from Olduvai, Tanzania (Harrison 1979d).

***Phalacrocorax capillatus* (Temminck & Schlegel), 1850** **Temminck's Cormorant**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

?: JA 15

LP: JA 12

***Phalacrocorax pelagicus* Pallas, 1811** **Pelagic Cormorant**

Stratigraphic range: Late Pleistocene (MNQ 26)?–present

?: JA 15

The Pelagic Cormorant also has a fossil record in North America going back to the Late Pleistocene (San Miguel Island, California (Jefferson 1991)).

***Phalacrocorax aristotelis* (Linnaeus), 1761** **European Shag**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

?: IT 7

LP: CY 1; FR 133; GR 10; IT 3, 14, 36, 40, 46–47; PG 2; SP 21–22, 25, 41, 53, 61, 64; UK 35

***Phalacrocorax pygmeus* (Pallas), 1773** **Pygmy Cormorant**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IS 18; LI 2

***Phalacrocorax africanus* (J. F. Gmelin), 1789** **Long-tailed Cormorant**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

EP: IS 35

LP: EG 5

***Phalacrocorax* sp.**

LP: JA 9

***Anhinga rufa* (Daudin), 1802** **African Darter**

Stratigraphic range: Early Pleistocene (MNQ 19?)–present

EP: IS 35?

***Pelecanus onocrotalus* Linnaeus, 1758** **Great White Pelican**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IS 10, 16–17; RM 4 (cf)

Pelecanus crispus* Linnaeus, 1758,*Dalmatian Pelican**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IT 40

(+) *Pelecanus crispus palaeocrispus* Serebrovskii, 1940

Stratigraphic range: Late Pleistocene (MNQ 25)

MP: AZ 2

CICONIIFORMES***Botaurus stellaris* (Linnaeus), 1758****Great Bittern**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: AZ 2; IT 75

LP: FR 80; IT 3, 53, 59; PO 16; UK 2?

Ixobrychus minutus* (Linnaeus), 1766*Little Bittern**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

?: IT 7

MP: AZ 2; IT 113

LP: BRD 123; IT 3, 112

Nycticorax nycticorax* (Linnaeus), 1758*Black-crowned Night Heron**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: AZ 2; FR 148?

LP: EG 5; JA 9

This species has also been recorded from a number of Rancholabrean sites in California, Florida and Mexico (Brodkorb 1963). The oldest of these are probably Bradenton and Rock Spring, Florida, which probably date to Sangamon (probably = IS 5e) (Kurtén & Anderson 1980).

Butorides striatus* (Linnaeus), 1758*Striated Heron**

EP: IS 35 (aff)

Bubulcus ibis* (Linnaeus), 1758*Cattle Egret**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: AZ 2

LP: BRD 147?; EG 5 (cf)

The record from Weimar-Ehringsdorf (BRD 147) is based on an eggshell, and must be regarded as extremely doubtful.

Ardeola ralloides* (Scopoli), 1769*Squacco Heron**

Stratigraphic range: Late Pleistocene (MNQ 26)?–present

?: IT 7

***Ardeola* sp.**

LP: CR 19

Egretta garzetta* (Linnaeus), 1766*Little Egret**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

?: IT 7

MP: AZ 2; CZ 33 (cf)

LP: BRD 147?; IS 18; SY 2

Egretta alba* (Linnaeus), 1758*Great Egret**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: AZ 2

LP: IRN 1; IS 10; SY 2

Egretta alba has been reported from the late Blancan (Pliocene) of Haile XVA, Florida (Becker 1987) and from the early Irvingtonian of Leisey Shell Pit, Florida (Emslie 1992).

Ardea cinerea* Linnaeus, 1758*Grey Heron**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

?: UK 52

EP: UR 26 (cf)

MP: AZ 2; BRD 144 (cf)

LP: BRD 63, 146?; CR 19; CZ 6; EG 5, 15–16; FR 4, 83?; HU 41; IR 3, 9; IS 10, 16–18; IT 30; SY 2; UK 14, 47, 52, 73; UR 27

Ardea purpurea* Linnaeus, 1766*Purple Heron**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: IT 7

EP: IS 35

MP: AZ 2, IT 118

LP: IT 13, 40, SP 64 (cf)

***Ardea* sp.**

LP: CR 13; IT 14

Ciconia nigra* (Linnaeus), 1758*Black Stork**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: AZ 2

LP: EG 2 (cf); IS 15; UK 64 (cf)

Ciconia ciconia* (Linnaeus), 1758*White Stork**

Stratigraphic range: Middle Pleistocene (MNQ 23)–present

MP: CI 11; FR 44, 197; IT 83

LP: CI 7; CR 13; CZ 12; FR 159; IS 10, 18, 23; JO 6; SP 64; UK 52

The records from China are presumably from *Ciconia [ciconia] boyciana* (Oriental Stork), now frequently regarded as a separate species.

***Ciconia* sp.**

EP: BU 6; FR 238

MP: CI 28

LP: FR 108, 131; IRQ 2; JA 17

Leptoptilos crumeniferus* (Lesson), 1831*Marabou Stork**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IS 23

+*Pelargosteon tothi* Kretzoi, 1961

Stratigraphic range: Early Pleistocene (MNQ 19)–Middle Pleistocene? (MNQ 22)

EP: HU 26; RM 2

MP: BRD 144?; HU 62 (cf)

Plegadis falcinellus* (Linnaeus), 1766*Glossy Ibis**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: AZ 2

LP: EG 5; IT 3; RM 12

Threskiornis aethiopicus* (Latham), 1790*Sacred Ibis**

?: CI 18 (cf)

Geronticus eremita* (Linnaeus), 1758*Northern Bald Ibis**

Stratigraphic range: Late Pliocene/Early Pleistocene (MN 18)–present

EP: SP 19

MP: IT 123

***Geronticus* sp.**

EP: BU 6

Platalea leucorodia* Linnaeus, 1758*Eurasian Spoonbill**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: AZ 2; CZ 33 (cf)

LP: EG 15–16, 30

***Platalea* sp.**

MP: AL 1

PHOENICOPTERIFORMES***Phoenicopterus ruber* Linnaeus, 1758****Greater Flamingo**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: EG 16

There are also records from the early Irvingtonian of Leisey Shell Pit, Florida (Emslie 1992) and from the latest Pliocene (1,74–1,9 MA BP) Bed 1 of Olduvai, Tanzania (Harrison 1980c).

ANSERIFORMES

Dendrocygna viduata* (Linnaeus), 1766*White-faced Whistling Duck**

No fossil record in the Palearctic, but reported from the Quaternary of Brazil (Brodkorb 1964).

Cygnus olor* (J. F. Gmelin), 1789*Mute Swan**

Stratigraphic range: Middle Pleistocene (MNQ 23)–present

MP: BRD 9; FR 197 (cf); IT 83

LP: BRD 109 (cf), 135–136, 146?; FR 4, 107, 141?, 144; IR 5 (cf); IT 1 (cf); PG 2; RM 4 (cf), 12; UK 2, 17 (cf)

According to Mlíkovský (1986), *Cygnus pristinus* Kurochkin 1971 from the mid-Pliocene of Mongolia is actually a synonym for *Cygnus olor*, which would extend the history of this species back to ca. MN 15/16.

(+) *Cygnus olor bergmani* Serebrovskii, 1940

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)

MP: AZ 2

Cygnus columbianus* (Ord), 1815*Tundra Swan**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: UK 52

MP: IT 17 (cf), 20, 83, 101; UK 23, 68

LP: FR 4; IR 11; IT 16; UK 9, 47, 52; North Sea (cf)

These records are presumably all from *Cygnus columbianus bewickii* Yarrell 1830, sometimes considered as a separate species. *Cygnus columbianus* has been reported from the Blancan of Hagerman, Idaho (Brodkorb 1964), but this record may be doubtful. It is not listed by Becker (1987). The species has also been recorded (*Cygnus cf columbianus*) in ca. 900 KA old deposits from Alamosa County, Colorado (Benson pers. com.)

Cygnus cygnus* (Linnaeus), 1758*Whooper Swan**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

?: BRD 102; MA 4, 6, 9–10

EP: SP 74 (cf)

MP: BRD 94 (cf); CZ 33 (aff); IT 75, 113; UK 30, 34

LP: BRD 7, 16, 63, 106, 122, 131, 135 (cf); CH 16; CR 8, 13; CZ 9, 23, 44; DA 3; FR 38, 44, 63, 108, 116, 144, 174, 224, 231; IS 15; IT 3, 16, 40, 58–59, 61, 72–73; MN 1; SV 3; UK 28; UR 25 (cf)

Cygnus cygnus/olor

MP: UK 30, 34

+ *Cygnus falconeri* Parker, 1865

Stratigraphic range: Late Pleistocene (MNQ 26)–early Holocene?

?: MA 3–6, 10

LP: MA 9

+*Cygnus equitum* Bate, 1916

Stratigraphic range: Late Pleistocene (MNQ 26)–early Holocene?

?: MA 1–5, 6, 8–9

***Cygnus* sp.**

?: FR 205; IR 6; MA 1, 3–5, 8, 10?

EP: BRD 141

MP: BRD 144

LP: BRD 3?, 11–12, 50, 84, 90, 108, 116, 131, 135, 142; CR 13; CZ 28, 32; IS 6, 18; IT 32, 46, 91; LI 2; SL 1

Anser cygnoides* (Linnaeus), 1758*Swan Goose**

?: CI 47 (cf)

Anser fabalis* (Latham), 1787*Bean Goose**

Stratigraphic range: Middle Pleistocene (MNQ 21/22)–present

?: IT 110; JA 10; MA 5

MP: BRD 14?; IT 92, 113, 118 (cf)

LP: AU 18; BRD 16, 22 (cf), 53, 72; CR 12–13; CZ 2, 32?, 47–48; EG 16; FR 4; HU 7 (cf); IR 11; IT 40, 46, 51?, 86; MO 1; RO 2, 8, 26; SK 2; SP 68, 83; SV 6; UK 3

Anser fabalis/anser

LP: BRD 16; HU 30; RO 26; SP 39

Anser fabalis/brachyrhynchus

LP: SP 68

Anser brachyrhynchus* Baillon, 1833*Pink-footed Goose**

Stratigraphic range: Middle Pleistocene (MNQ 22/23)–present

?: UK 52

MP: FR 13?, 126?; IT 28, 76

LP: FR 95, 140, 215; IT 40; UK 15, 47, 52

Anser albifrons* (Scopoli), 1769*Greater White-fronted Goose**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: IR 1?, 6?, 9?, 10

EP: IS 35

MP: AZ 2; CZ 41 (aff); IT 83, 93, 113, 118 (cf); RO 7 (cf); UK 34, 60 (cf)

LP: AU 10, 18, 21 (cf); BRD 16; CZ 6; EG 16, 30, 32, 34; GR 15; HU 44; IR 1, 10, IS 9, 11, 23; IT 3, 13, 40, 49, 53, 61–62; RM 12; RO 26; SP 41?; UK 33, 35, 39, 52, 57

Anser erythropus* (Linnaeus), 1758*Lesser White-fronted Goose**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

EP: FR 196 (cf)

MP: CZ 23; IT 21, 118 (cf), 123; RO 7

LP: AU 18, 21–22; CZ 6, 29, 34; IS 18; IT 38, 40, 51?, 104; PO 27; SP 27, (cf), 61 (aff)

***Anser anser* (Linnaeus), 1758**

Greylag Goose

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: CZ 25, 51, FR 234 (cf), IR 4, 6, 9; UK 52

MP: AZ 2; BRD 57; CZ 23, 41 (aff); FR 197 (cf); GR 13; IT 75; SP 5; UK 30, 34, 68

LP: AU 16 (cf), 18, 21; BRD 11, 16, 26, 62–63, 69, 107–108, 118, 135?, 142, 147?, 156; CH 16; CR 13, 16; CZ 2, 6, 12, 29, 32, 34, 45; FR 4, 33, 107, 213, 231, 240; GE 2, 5, 8–9; HU 22 (cf), 30; IR 1, 5 (cf); IRN 1 (cf), 2?; IS 11, 18; IT 38, 40?, 46; IT 120; MO 1; PO 4 (cf), 14?; RO 10, 26, 40; SP 20 (cf), 39, 42, 83; SY 2; UK 9 (cf), 12?, 18, 20, 25, 29, 38–40, 52, 54, 57, 66, 73 (cf)

+*Anser subanser* Janossy, 1982

Stratigraphic range: Early Pleistocene (MNQ 20)–Middle Pleistocene (MNQ 22)

EP: BRD 141 (aff); HU 46

MP: BRD 144; CZ 33; HU 62

+*Anser azerbaijanicus* Serebrovskii, 1940

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)

MP: AZ 2

***Anser caerulescens* (Linnaeus), 1758**

Snow Goose

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IT 40

The presence of this East Palearctic/Nearctic form at Grotta Romanelli must be regarded as doubtful until the material has been restudied. The species has a well-attested fossil record in North America, going back at least to IS 5e (Harbor City, California (Jefferson 1991)). A record from American Falls, Idaho (Brodkorb 1964) may be of similar or slightly greater (Illinoian) age (Kurtén & Anderson 1980).

***Anser rossii* Cassin, 1861**

Ross's Goose

No fossil record in the Palearctic, but known from the Wisconsinan of Fossil Lake, Oregon (Brodkorb 1964) and perhaps also from Rancho La Brea, California (Lundelius et al. 1983).

***Anser* sp.**

?: BRD 102; FR 72; IR 6; JA 15–16; MA 4; SK 2

EP: RM 7

MP: CZ 41

LP: BE 7, 12, 15; BH 3; BRD 3, 6, 11–12, 18, 47, 50, 76, 89–90, 106, 115, 124, 131, 135–138, 148; CH 10; CR 13; CZ 2, 37; FR 4, 9, 33, 141, 165, 169; HU 38; IR 5, 8; IS 6, 10–11, 16–17; IT 32, 36; LU 1; MO 1; PO 3, 13, 23; RM 12; RO 7, 15, 24; SP 41, 65; SV 1–2; UK 9, 53; UR 13, 17

Anser/Branta sp.

LP: SP 7

Branta leucopsis (Bechstein), 1803**Barnacle Goose**

Stratigraphic range: Middle Pleistocene (MNQ 21/23)–present

?: MA 1,3,4,7

MP: IT 75, 83, 101; UK 60 (cf)

LP: BRD 90, 206, 213; IR 11; IT 40, 51?; PO 18 (cf); SP 53?, 83; UK 10, 15, 17, 42, 52

Branta bernicla (Linnaeus), 1758**Brent Goose**

Stratigraphic range: Middle Pleistocene (MNQ 21/23)–present

?: MA 4, 10?; UK 52

MP: IT 75, 76

LP: BE 7; CZ 6; IT 3, 40, 49, 53, 62; SP 7, 41, 55?; UK 14–15, 38, 52

Branta ruficollis (Pallas), 1769**Red-breasted Goose**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: AZ 2; BRD 144 (cf); IT 75; UK 30

LP: GR 10, 20 (cf); HU 2?; IT 40; RO 26; SK 2

Branta cf ruficollis has also been reported from the Middle(?) Pleistocene of Trinil, Java (Weesie 1982b).**Branta sp.**

MP: IT 123

LP: BRD 89; CZ 32; EG 16; IT 14; LI 2; SP 61

Tadorna ferruginea (Pallas), 1764**Ruddy Shelduck**

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

?: MA 5

MP: AZ 2; SP 5, 75, 82

LP: AU 18 (cf); BRD 94; EG 16; IRN 1 (cf); IS 18; RM 33; RO 40; SP 41, 64; UK 47, 52; UR 19

Tadorna tadorna (Linnaeus), 1758**Common Shelduck**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: IR 4

EP: IS 35; RM 2 (cf)

MP: AZ 2; FR 126; UK 64

LP: BE 7; BRD 135 (cf); CI 41; FR 33, 165, 169; IRQ 2; IS 9, 11, 18, 23; IT 38; PG 2; SP 2, 39, 41, 54?, 83; SY 2; UK 7, 9 (cf), 33, 35, 46, 63; UR 24

Tadorna sp.

?: IT 122

EP: HU 32

MP: BRD 144?; CZ 33, 41

LP: SP 41

***Plectropterus gambensis* (Linnaeus), 1766** **Spur-winged Goose**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: EG 16?

***Aix sponsa* (Linnaeus), 1758** **Wood Duck**

LP: LI 3

This record is almost certainly due to a misidentification, as is a record from Kirkdale Cave (UK 38) (Brodkorb 1964). The Wood Duck is known as a fossil in North America since the Rancholabrean (Rock Spring, Haile, Itchtucknee River, Fla (Brodkorb 1964, Campbell 1980), Shorts Creek, Kansas, Brynjolfsen Caves, Missouri and Dark Canyon Cave, New Mexico (Lundelius et al. 1983)).

***Aix galericulata* (Linnaeus), 1758** **Mandarin Duck**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

MP: UK 68

***Anas penelope* Linnaeus, 1758** **Eurasian Wigeon**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: IR 1, 6–7, 9–10; IT 9, 23; UK 52

EP: IS 35; RM 2 (cf)

MP: AZ 2; BRD 14, 66, 144 (cf); CZ 41 (cf); FR 157; IT 76, 92–93, 113, 118, 123; UK 68; UR 15

LP: AU 18; BRD 7, 16?, 135 (cf); CR 12; CZ 6, 41 (cf); EG 16; FR 4, 84, 206; GE 5; GR 10; HU 2 (cf), 41, 44; IR 5, 10; IS 18; IT 3, 16, 40, 46–47, 49, 58–59, 66, 73, 105; PO 4 (cf), 31; RM 16, 33; RO 16–17, 26; SK 2; SP 7, 55, 83; SY 2; UK 14, 17, 33, 38, 52, 57; UR 1

***Anas falcata* Georgi, 1775** **Falcated Duck**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: AU 18

This identification requires confirmation.

***Anas strepera* Linnaeus, 1758** **Gadwall**

Stratigraphic range: Early Pleistocene (MNQ 19/20)–present

?: SK 2

EP: RM 2; SP 66

MP: AZ 2; BRD 14; CZ 41; IT 93; RO 7 (cf); SP 6; UK 67

LP: CR 13; CZ 2, 12, 26; FR 97, 144, 169, 213, 231; GE 2; HU 38; IT 46; RM 33; RO 10, 26, 40; SP 39; UK 9 (cf); UR 17

***Anas crecca* Linnaeus, 1758** **Common Teal**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: IR 9

EP: FR 196 (cf); IS 35; RM 2 (cf); SP 66

MP: AZ 2; BRD 144 (cf); FR 126, 157, 171, 211; IT 90, 93; SP 5 (cf), 9, 10, 75; UR 21, 24

LP: AU 6, 18, 21; BH 3, 6; BRD 7, 16, 32, 37, 73, 119–120, 124, 138 (cf), 150; CH 22, 25; CR 12–13, 16 (cf), 19; CY 1; CZ 2, 6, 11–12, 34, 37; EG 15–16, 32, FR 4, 10, 39, 41–42, 44, 48, 58, 84, 97, 115, 141, 144, 169–170, 172, 176, 198, 231–232; GE 2, 8–9; GR 21; HU 18, 41, 44, 54; IS 10–11, 15, 18; IT 3, 13, 40, 46–47, 49, 62, 105, 109; LI 3; PG 2; PO 13 (cf), 18, 32; RM 8, 18; RO 10, 16, 26, 40; SK 2, 8; SP 7, 22, 33, 39, 41, 55, 61, 68; SR 1; SY 2; UK 2?, 9, 17, 29, 52, 57; UR 17

Anas crecca has been reported from the late Hemphillian (late Miocene/early Pliocene) of Coffee Ranch, Texas (Becker 1987). Such an old record of an extant species however requires confirmation. The records from the late Blancan (Pliocene) of Haile XVA, Florida (Becker 1987) and the early Irvingtonian of Leisey Shell Pit, Florida (Emslie 1992), seem more credible.

Anas crecca/querquedula

EP: SP 66

LP: BRD 119; CH 22; EG 32; GE 18; RO 5, 10; SP 39; UK 62

***Anas platyrhynchos* Linnaeus, 1758**

Mallard

Stratigraphic range: Early Pleistocene (MNQ 19/20)–present

?: AR 2; BRD 82; FR 93?; IR 1, 4, 6–7, 9–10; IT 26, 55, 64; SK 2; UK 52

EP: SP 66

MP: BRD 9, 66, 94, 144 (cf); CZ 41 (cf); FR 13, 54, 59 (cf), 126, 148, 157, 171, 197, 211; HU 65 (cf); IT 50, 76, 102, 113, 118; SP 9–10, 75, 82 (cf); UK 23, 34, 68–69, 72 (cf); UR 15, 24

LP: AU 10, 18, 21, 22; BH 1; BRD 2?, 4, 7, 16, 18, 20–21, 27, 32, 38, 40, 47, 53, 63, 73, 106, 113, 115, 118–122, 124 (cf), 126–127, 135, 138 (cf), 142, 147, 150, 156; BU 1; CH 1, 9, 13, 16, 22; CI 41; CR 13, 19; CZ 2, 6, 11, 16, 18, 34, 37; EG 16, 30, 34; FR 3–5, 7–8, 11, 15, 18 (cf), 32–33, 38, 40, 42, 44, 48, 50, 58, 68, 80, 84, 89, 95, 97, 107–109, 116–117, 131, 138, 140–141, 144, 150, 158 (cf), 159, 165, 169–170, 174, 176 (cf), 198, 206, 217, 220–221, 231, 236, 240, 245–247; GE 2, 5, 8, 15, 17–18 (cf), 20; HU 2, 9, 16, 20 (cf), 21–22, 38, 41, 44, 47, 57; IR 1, 5 (cf), 7, 10; IRQ 2 (cf); IS 9–11, 15–18, 23; IT 1, 3, 16, 34, 38, 46–47, 55, 59, 61–62, 66–67, 72, 95, 97, 99, 109, 112, 120; JO 10; LI 2; MO 1, 3; PO 11, 13, 18 (cf), 21, 32; RM 16, 33; RO 14, 16, 23, 26, 40; SP 1–2, 4, 7, 14, 21, 33, 39, 41–42, 54–56, 58–59, 64, 68, 71, 73, 83; SY 2; UK 5, 12, 14, 17 (cf), 20, 24–25, 29, 33, 35, 38–39, 43, 46, 52, 55 (cf), 57, 62–63, 65–66, 73 (cf); UR 1, 8, 17, 24

Anas platyrhynchos has been reported from the early Blancan (Pliocene ca. 3.5 MA BP) of Hagerman, Idaho (Becker 1987) and from the early Irvingtonian of Leisey Shell Pit, Florida (Emslie 1992).

(+) *Anas platyrhynchos palaeoboschas* Serebrovskii, 1940

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)

MP: AZ 2

Anas poecilorhyncha* Forster, 1781*Spot-billed Duck**

?: JA 13 (cf)

Anas acuta* Linnaeus, 1758*Northern Pintail**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: IR 9

EP: IS 35; RM 2 (aff)

MP: AZ 2; BRD 66, 94 (cf), 147 (aff); CZ 41 (cf); FR 147 (cf); HU 65 (cf); IT 50, 76, 92, 113; MA 4; RO 7; UR 21

LP: AU 16, 18; BRD 16, 69, 73, 106, 113, 121, 123, 126–127; CH 25, 27–28; CR 12, 19; CZ 30, 49; EG 15–16, 32; FR 144, 240; GE 8, 21; IR 7; IRQ 2 (cf); IS 18; IT 16, 47, 72; JO 1; LI 3; MO 3; PO 13 (cf); RO 16; SK 2; SP 33, 68; SY 2; UK 14; UR 1

There is also a somewhat uncertain record from the late Blancan/early Irvingtonian of Vallecito Creek, California (Becker 1987).

Anas querquedula* Linnaeus, 1758*Garganey**

Stratigraphic range: Late Pliocene/Early Pleistocene (MN 18)–present

?: IT 7, 55

EP: RM 2; UR 31 (cf)

MP: AZ 2; BRD 66; CZ 41; FR 126; IT 50, 76, 85, 120, 123; SP 10 (cf); UR 15 (cf)

LP: AU 16, 18, 21; BRD 20, 38, 73, 121, 126, 135; CR 19; CZ 2, 11–12, 37; EG 2 (cf), 17; FR 8, 11, 40?, 44, 97, 144; GE 10 (cf); GR 7, 10; HU 38, 47, 57; IS 10, 18, 23; IT 1, 46–47, 55, 66, 73, 89 (cf), 97, 120; JO 1; RM 6, 33; RO 5, 23 (cf), 25–26; SP 2, 7, 33, 68; SY 2; UK 52, 62; UR 1, 17

Anas clypeata* Linnaeus, 1758*Northern Shoveler**

Stratigraphic range: Early Pleistocene (MNQ 19/20)–present

?: IT 55

EP: RM 2; SP 66; UR 31 (cf)

MP: AZ 2; CZ 41, 53; FR 147 (cf), 171; SP 9; UK 60; UR 15, 24

LP: BRD 73, 106, 147?; CZ 12; FR 39, 107?, 133, 144, 165, 170, 231, 236; GE 9; IS 18; IT 3?, 46, 55, 72; PO 13 (cf); RM 6 (cf), 31, 33; RO 16, 26, 28; SP 41, 55, 83; SY 2; UR 17, 24

There is also a record from the late Blancan/early Irvingtonian of Vallecito Creek, California (Becker 1987).

+*Anas submajor* Janossy, 1979

Stratigraphic range: Late Pliocene/Early Pleistocene (MN 18)

EP: HU 66; RM 2

***Anas* sp.**

?: BRD 35, 46, 82, 102; CI 36; FR 72; IR 4; IT 27; JA 7, 15–16; MA 4, 10?

EP: HU 25; SP 66; UR 26

MP: BRD 134, 144; CZ 33; IT 83; SP 75; TK 1

LP: AU 6; BE 10–13, 15–16; BRD 2, 11, 21, 28, 37–38, 55, 58, 60, 78–79, 90, 106, 115–116, 120, 125–126, 128–130, 135, 148; CH 8, 16; CI 10, 20; CR 6,

19; CZ 2, 6, 32, 37, 52; EG 34; FR 8, 80, 107, 165, 206, 233, 239; GE 18; HU 56; IR 2; IS 9, 18; IT 6, 12, 14, 32, 36, 40; JA 12; JO 9; LI 3; MN 2; MO 1; RM 12; RO 15, 26; SK 1; SP 7, 44, 55; UK 2, 13, 18, 38?, 52–53, 64; UR 7–8, 13, 17; UZ 1?

[+*Anas arcensis* Kretzoi, 1962 a *nomen nudum*]

MP: HU 63

Anas/Aythya sp.

LP: PO 31

Marmaronetta angustirostris (Ménétriés), 1832

Marbled Duck

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: MA 4

MP: IT 123

LP: IS 18; SY 2

Marmaronetta sp.

?: MA 3

Netta rufina (Pallas), 1773

Red-crested Pochard

Stratigraphic range: Early Pleistocene (MNQ 19/20)–present

EP: SP 66

MP: AZ 2; UK 49, 68

LP: BRD 73; IT 3, 59; SP 33, 64; SY 2

Netta sp.

LP: BRD 135

Aythya ferina (Linnaeus), 1758

Common Pochard

Stratigraphic range: Early Pleistocene (MNQ 19/20)–present

?: IR 6,9; MA 5

EP: SP 66

MP: AZ 2; CZ 33 (cf); GE 9; GR 13 (cf); IT 50, 83, 90, 118; UK 49, 68

LP: AU 18; BH 3 (cf); BRD 123?; CR 8, 12–13, 19; CZ 2, 11, 26, 49; EG 16–17, 34; FR 44, 50, 198; GE 2; HU 41; IRN 1; IS 18; IT 3, 30, 40, 46?–47, 49, 59, 73, 97; PO 29 (cf); RO 17, 26; SP 39, 41?–42, 83; SY 2

Aythya ferina/fuligula

LP: EG 17, 34

Aythya nyroca (Güldenstädt), 1770

Ferruginous Duck

Stratigraphic range: Early Pleistocene (MNQ 19/20)–present

EP: RM 2; SP 66

MP: AZ 2; BRD 66, 144 (cf); CZ 33 (cf), 41 (cf); FR 211; HU 55 (cf); IT 113

LP: AU 18; BRD 147?; CR 13, 19; FR 15, 32, 39, 44, 50; GE 9; HU 9, 21, 38, 41, 44; IS 11, 18; IT 47; MO 1, 3; RM 16; SP 7, 41, 64; SY 2; UR 1, 24

Aythya fuligula* (Linnaeus), 1758*Tufted Duck**

Stratigraphic range: Middle Pleistocene (MNQ 19/20)–present

?: IR 1, 6, 9; IT 55; SK 2

EP: SP 66

MP: BRD 144 (cf); CZ 33 (cf), 41 (cf); FR 13; UK 68

LP: AU 16, 21 (cf); BRD 16, 37, 63, 70, 106, 135; CH 1?; CR 6 (cf), 13, 19; FR 7, 38, 80, 144, 174, 221, 227, 235–236; GE 8, 12; IS 11, 18; IT 40, 46, 55, 72–73; PO 13, 24; RM 6; RO 26; SP 37, 39, 64; SY 2; UK 17, 29, 52, 66; UR 1

Aythya marila* (Linnaeus), 1761*Scaup**

Stratigraphic range: Middle Pleistocene (MNQ 23)–present

MP: FR 147 (cf), 211

LP: BRD 76, 121; CZ 2; GE 8; IR 5?, 10, 18, 40; PO 13; SY 2

There is also a record from the early Irvingtonian of Leisey Shell Pit, Florida (Emslie 1992).

(+) *Aythya marila asphaltica* Serebrovskii, 1941

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)

MP: AZ 2

+ *Aythya aretina* (Portis), 1889

Stratigraphic range: Early Pleistocene (MN 18)

EP: IT 121, 124

+ *Aythya sepulta* (Portis) 1889

Stratigraphic range: Early Pleistocene (MN 18)

EP: IT 121

***Aythya* sp.**

?: JA 16

EP: BU 6; IS 35; SP 66

MP: CI 28

LP: BRD 115?, 122, 135?; JO 9 (cf); PO 31; SP 39, 41

Somateria mollissima* (Linnaeus), 1758*Common Eider**

Stratigraphic range: Late Pleistocene (MNQ 25)–present

LP: DA 6; IC 1; NO 1–2; SP 68; SV 5; UK 17, 58

Somateria spectabilis* (Linnaeus), 1758*King Eider**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: BRD 115; NO 1–2; RO 26

+ *Somateria gravipes* Harrison, 1979

Stratigraphic range: Middle Pleistocene (MNQ 21)

MP: UK 68

The validity of this taxon has been questioned by Mlíkovský (1982a) who synonymizes it with *Somateria mollissima*.

***Somateria* sp.**

LP: FR 108

Histrionicus histrionicus* (Linnaeus), 1758*Harlequin Duck**

This species has been reported from two Late Pleistocene sites in Sweden (SV 4, 7 (Landeryd and Slangemölla)) but these records are actually of *Bucephala clangula* (probably) and *Clangula hyemalis*, respectively (Munthe 1914).

Clangula hyemalis* (Linnaeus), 1758*Long-tailed Duck**

Stratigraphic range: Early/Middle Pleistocene (MN 18/MNQ 21)–present

EP: UK 71

MP: AZ 2

LP: BE 7; CZ 2; DA 2; FR 7, 44, 115, 144, 170; IT 40; NO 1; PG 3; PO 18; RO 17, 26; SP 14, 64; UK 17

This species has been recorded from Haile XIB, Florida in deposits of possibly Sangamonian (IS 5e) age (Brodkorb 1964; Kurtén & Anderson 1980).

Clangula hyemalis/Histrionicus histrionicus

LP: SV 4

Melanitta nigra* (Linnaeus), 1758*Common Scoter**

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

?: UK 52

MP: FR 13; UK 45, 49, 60

LP: BRD 16, 76; CZ 6; FR 11, 44, 115, 144, 169; IR 10; IT 3; NO 1; PG 2, 3; PO 13, 32; SK 2; SP 41, 55; UK 17, 20, 33, 43, 47, 52, 56

Melanitta perspicillata* (Linnaeus), 1758*Surf Scoter**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: UK 43, 58

The identification of this Nearctic species requires confirmation. The Surf Scooter however has a well-attested fossil record in North America going back at least to IS 5e (San Pedro, California (Jefferson 1991)) and, with some uncertainty to the late Blancan/early Irvingtonian of Vallecito Creek, California (Becker 1987).

Melanitta fusca* (Linnaeus), 1758*Velvet Scoter**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

?: IT 26

MP: AZ 2; FR 67 (cf)

LP: AU 16; BRD 115; FR 165, 221; IS 18; IT 40; NO 1–2; PG 3; SP 53?, 55, 64; SV 7 (cf); UK 17, 20

Bucephala clangula* (Linnaeus), 1758*Common Goldeneye**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: IT 55

EP: SP 74 (cf)

MP: AZ 2; BRD 9, 66?; CZ 33 (cf), 41; FR 147; UK 60, 68; UR 15
 LP: AU 16, 21; BRD 16, 92, 115, 119, 123, 135; CH 10, 13; CZ 2; FR 42; HU 18;
 IS 18; IT 3, 55, 59; RM 8; RO 17; SV 7 (cf); SY 2; UK 20, 55, 62; UR 1

+ *Bucephala angustipes* Janossy, 1965

Stratigraphic range: Middle Pleistocene (MNQ 21)

MP: BRD 144; CZ 41

This form is synonymized with *Bucephala clangula* by Mlíkovský (1982). It is, however, significantly smaller than extant Goldeneyes.

***Mergus albellus* Linnaeus, 1758**

Smew

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: SK 2

MP: AZ 2; FR 171; UK 16, 68

LP: BRD 73, 115; CZ 6, 11, 37; EG 16; FR 32; FR 169; GE 2; HU 21, 41; IR 7; IS
 18; IT 3, 16, 46 (aff); SP 39; SY 2; UK 6, 12?, 43, 62

***Mergus serrator* Linnaeus 1758,**

Red-breasted Merganser

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

MP: BRD 14, 66 (cf); CZ 41; FR 13, 171; IT 75; SP 82; UK 60, 68

LP: AU 16; BE 7; BRD 121, 126, 142; CZ 6, 49; EG 16; FR 33, 86, 107, 141,
 165; IT 3, 40, 59; RM 4, 25 (cf); RO 26; SP 39, 53 (cf), 55, 83; SY 2; UK
 41, 43; UR 1, 34

There is also a record from the early Irvingtonian of Leisey Shell Pit, Florida (Emslie 1992).

***Mergus merganser* Linnaeus 1758,**

Goosander

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: UK 52

MP: BRD 144; CZ 41; FR 13, 59, 171

LP: AU 16, 18, 21; BE 7; BRD 16, 37, 119, 121, 126, 135, 142, 153; CH 22; CR 19;
 CZ 6, 49; EG 16; FR 48, 84, 102, 131–132, 140, 165, 213, 231, 240; GE 8; HU
 2; IS 18; IT 3, 59, 62; PO 15, 18, 32; RM 4, 12; RO 26; SP 2; UK 29, 52; UR 1

Has been reported from the late Blancan (Pliocene) of Santa Fe River IB, Florida (Becker 1987).

+ *Mergus connectens* Janossy, 1972

Stratigraphic range: Early Pleistocene (MNQ 20)–Middle Pleistocene (MNQ 21)

EP: RM 2

MP: CZ 41

***Mergus* sp.**

?: FR 72

LP: BRD 108; CR 19; FR 84, 165; IT 40

- Oxyura leucocephala* (Scopoli), 1769** **White-headed Duck**
 Stratigraphic range: Late Pleistocene (MNQ 26)–present
 MP: CZ 33 (aff)
 LP: IS 18

ACCIPITRIFORMES

- Pernis apivorus* (Linnaeus), 1758,** **European Honey Buzzard**
 Stratigraphic range: Late Pleistocene (MNQ 26)–present
 MP: CZ 41 (cf)
 LP: HU 22; IS 16–17, 23; RM 16

cf *Pernis* sp.
 LP: BRD 148

- Elanus caeruleus* (Desfontaines), 1789** **Black-winged Kite**
 Stratigraphic range: Late Pleistocene (MNQ 26)?–present
 LP: SP 2?

This record is almost certainly attributable to a misidentification (F. Hernández pers. com.). *Elanus caeruleus* has been recorded from the Late Pleistocene of North America (Rancho La Brea, California; San Josecito Cave, Nuevo Leon (Brodkorb 1964; Jefferson 1991)), but the North American form is now usually regarded as a separate species *Elanus leucurus*.

- Milvus migrans* (Boddaert), 1783** **Black Kite**
 Stratigraphic range: Late Pleistocene (MNQ 26)–present
 MP: FR 171 (cf)
 LP: CZ 6; EG 16; FR 231 (cf); IS 10–11, 15, 23; IT 40; SY 2

- Milvus milvus* (Linnaeus), 1758** **Red Kite**
 Stratigraphic range: Late Pleistocene (MNQ 25)–present
 ? : IT 55, 79 (cf)
 LP: FR 17, 154; IS 15; IT 14, 55, 72; SP 41, 64; UK 3

- + *Milvus pygmaeus* Tchernov, 1980**
 Stratigraphic range: Early Pleistocene (MNQ 19)
 EP: IS 35

***Milvus* sp.**
 MP: AZ 2

- Haliaeetus vocifer* (Daudin), 1800** **African Fish Eagle**
 Stratigraphic range: Late Pleistocene (MNQ 26)–present
 LP: EG 1

The species has also been recorded from the late Middle Pleistocene of Broken Hill, Zimbabwe (Harrison 1979d).

Haliaeetus albicilla* (Linnaeus), 1758*White-tailed Eagle**

Stratigraphic range: Late Pliocene/Early Pleistocene (MN 18)–present

?: BRD 15; IT 9,55

EP: NE 3

MP: AZ 2; BRD 9; CZ 41 (aff); FR 147, 157, 216; GR 2

LP: AU 10; BE 11, 15; BRD 106, 119; CI 7; CR 6, 13; FR 9, 108, 131, 133, 183, 240, 256; GE 6, 8, 12; GR 9–10; HU 41; IRQ 3; IT 3, 40, 55, 72, 109; JA 12 (cf); PO 11; RM 16, 21; RO 16; SP 53, 61, 64; UK 9, 13–14, 57, 66

Haliaeetus pelagicus* (Pallas), 1811*Steller's Sea Eagle**

?: JA 15 (cf), 18 (cf)

Lydekker (1891) assigned a find from Walthamstow (UK 66) to this species, but it is actually *Haliaeetus albicilla* (Harrison & Walker 1977).

+*Haliaeetus angustipes* Janossy, 1983

Stratigraphic range: Middle Pleistocene (MNQ 22)

MP: CZ 33

+*Haliaeetus* aff. *angustipes*

EP: BRD 141

***Haliaeetus* sp.**

MP: BRD 144

LP: IRQ 2; RO 33; SP 53, 88

Gypaetus barbatus* (Linnaeus), 1758*Lammergerie**

Stratigraphic range: Middle Pleistocene (MNQ 22/23)–present

?: BE 5

MP: FR 59, 147–148, 157, 211?

LP: CH 18; CI 7; FR 8, 12, 21, 32, 38–39, 110, 112, 124, 131, 133, 144, 165, 170, 172, 174, 240, 245; GE 8–9, 11; GR 5, 10–11; HU 47, 53, 68; IRQ 3; IT 1, 14, 72; RM 4, 12; SP 2, 38, 41, 45

+*Gypaetus osseticus* Burchak-Abramovich, 1971

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)

MP: GE 19

This form was erroneously listed as a *nomen nudum* by Brodkorb (1978).

Neophron percnopterus* (Linnaeus), 1758*Egyptian Vulture**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: AZ 2

LP: CR 13; FR 165; GR 3; IRQ 2; IS 11; JO 9; SP 17, 45, 83

The species has also been recorded from the late Middle Pleistocene of Broken Hill, Zimbabwe (Harrison 1979d).

Gyps bengalensis* (J. F. Gmelin), 1788*Indian White-backed Vulture**

MP: BRD 81

This identification is certainly very questionable.

Gyps africanus* Salvadori, 1865*White-backed Vulture**

Stratigraphic range: Late Pleistocene (MNQ 25)–present

LP: EG 5

Gyps fulvus* (Hablizl), 1783*Eurasian Griffon Vulture**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

?: IT 55, 98

MP: AZ 2; IS 34

LP: CR 6, 13; CZ 32; FR 12, 33, 63, 131, 133, 162, 165, 173, 206, 227, 240; GE 8, 10; GR 10, 14; IRN 1; IRQ 3; IS 11, 16–17, 29?; IT 32, 40, 46, 52, 55; LI 2; RM 11, 17, 25–26, 33; SP 45, 52–53, 57, 64, 76, 79; SR 1

(+) *Gyps fulvus spelaeus* Friant, 1952

LP: BE 2

+ *Gyps melitensis* Lydekker, 1890

Stratigraphic range: Middle Pleistocene (MNQ 22)–Late Pleistocene (MNQ 26)

?: MA 1, 3, 5, 8, 10–11

MP: AU 7; BRD 94 (cf); HU 65 (cf)

LP: FR 141, 240; GR 10, 15; HU 22 (aff); IT 55

This species seems to be the only possible western Palearctic case of a “Big Game Scavenger” which became extinct together with the Pleistocene megafauna. The generic assignment of *Gyps melitensis* is uncertain since it shows a mixture of *Gyps* and *Aegypius* features (Jánossy 1989; F Hernandez pers. com.).

+ *Gyps melitensis aegypoides* Janossy, 1989

Stratigraphic range: Middle Pleistocene (MNQ 24)

MP: AU 11

***Gyps/Aegypius* sp.**

LP: RO 25; SP 3

(+) *Torgos tracheliotus todei* Kleinschmidt, 1953**Lappet-faced Vulture**

Stratigraphic range: Late Pleistocene (MNQ 26)

LP: BRD 116

This unique record of a species otherwise unknown as a fossil should probably be regarded with caution pending re-study of the specimens.

Aegypius monachus* (Linnaeus), 1766*Eurasian Black Vulture**

Stratigraphic range: Middle Pleistocene (MNQ 22/23)–present

?: FR 179; IT 55, 79 (cf)

EP: SP 74 (cf)

MP: FR 13, 54, 59, 147–148, 171

LP: AU 18; BRD 58, 115, 150 (cf); BU 4; CI 7, 41; CR 12, 13; FR 2, 8, 12, 69, 87 (cf), 108, 112, 128, 131, 133, 154?, 165, 172, 174, 183, 198, 217; GE 9, 20; GR 10; HU 6, 47; IS 11, 16–17; IT 14, 44, 55, 72; LI 2; RM 12, 16; RO 14, 27; SP 44, 53, 55; SY 2

***Aegypius* sp.**

LP: FR 16; RO 25; SP 3

***Circus gallicus* (J. F. Gmelin), 1788**

Short-toed Eagle

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: FR 169 (cf), IRQ 4, IT 67, 72, SP 41

***Circus aeruginosus* (Linnaeus), 1758**

Western Marsh Harrier

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: AZ 2

LP: BU 1; CR 13, 19; CZ 6; GE 8; IT 3, 59, 62, 67; NE 1 (cf); RO 16, 25–26, 28; SY 2

***Circus cyaneus* (Linnaeus) 1766,**

Hen Harrier

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

?: SK 2

EP: HU 33 (aff)

MP: AZ 2; FR 147 (cf)–148 (cf), 157 (cf), 171 (cf)

LP: AU 21 (cf); BRD 37; BU 4; CR 13; CZ 2; FR 160, 227, 245 (cf); HU 21, 38, 41, 44, 56; IRQ 4 (cf); IT 3, 13–14 (cf), 19, 59, 62, 72; RO 16, 26; SP 61; UR 17?, 24, 27

This species is also known from a number of Nearctic sites, none of which is however definitely older than the Wisconsinan.

***Circus macrourus* (J. F. Gmelin), 1771**

Pallid Harrier

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

?: IT 55

MP: AZ 2; FR 171

LP: CZ 2, 12; FR 133, 169 (cf), 191; HU 38; IT 3, 14, 55, 59, 62, 67; RO 16; SY 2

***Circus pygargus* (Linnaeus), 1758**

Montagu's Harrier

Stratigraphic range: Late Pleistocene (MNQ 26)–present

MP: FR 171 (cf)

LP: CZ 2; IT 3, 97; SY 2; UR 1, 24

***Circus* sp.**

EP: RM 2

MP: EG 12 (cf)

LP: CY 1; FR 247; IS 23; JO 9; RM 16; SP 65

Accipiter gentilis* (Linnaeus), 1758*Northern Goshawk**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: IT 55

EP: IS 35 (cf)

MP: AZ 2; CR 19; CZ 41 (cf); FR 147–148, 164; IT 123; TK 1 (cf)

LP: BRD 38; CI 7; CR 5, 12 (cf), 19; CZ 2; FR 20, 90, 133, 141, 165, 170, 213, 231, 247, 256; GE 9; GR 10; HU 22 (cf), 44; IS 10–11, 15; IT 3, 13, 46, 55, 59; JO 9; MK 1; PO 13; RO 3; SP 4, 7, 41, 59, 83; SY 2; UK 13, 18, 31, 52, 55

(+) *Accipiter gentilis breviodactylus* Mourer-Chauvire, 1975

Stratigraphic range: Middle Pleistocene (MNQ 22)–Middle Pleistocene (MNQ 23)

MP: FR 67 (cf), 157, 164 (cf), 197

Accipiter virgatus* (Temminck), 1822*Besra**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: CI 7

Accipiter nisus* (Linnaeus), 1758*Eurasian Sparrowhawk**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: CZ 51, FR 30, 93

MP: CI 8 (cf), 11 (cf); CZ 41; FR 147–148, 157, 211; HU 55 (cf); IT 50, 123; SP 9

LP: AU 3; BRD 43, 71, 121, 129?, 142; BU 2; CI 7 (cf); CR 11–13; CZ 2, 6, 16, 49; FR 42, 47–48, 97 (cf), 170, 191, 216, 235, 245; GE 9; GR 10; HU 44; IR 9; IS 10–11, 15–17; IT 3, 47, 72; RM 4; SP 22, 24, 28, 42; SR 1; SY 2; UK 12; UR 24

***Accipiter* sp.**

?: JA 16

LP: BRD 6; IS 23; JO 9; RO 15; SP 21

***Accipiter/Aquila* sp.**

LP: SP 41

***Accipiter/Buteo* sp.**

LP: PO 18

Buteo buteo* (Linnaeus), 1758*Common Buzzard**

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

?: FR 31; IT 9, 57, 68; JA 4, 15

EP: UR 33 (cf)

MP: FR 147 (cf)–148, 171, 202; GE 9; TK 1 (cf)

LP: BRD 11, 106; CI 7; CR 5, 13, 19; FR 8, 11, 42, 84, 108, 131, 133, 140, 144, 154, 165, 191, 240?, 247, 250; GE 9; GR 10, 16; HU 8, 11, 22, 44, 47; IS 9 (cf), 10–11, 16–18, 23; IT 3, 14, 45, 47, 49, 59, 62, 67, 109, 120; JA 9, 12; LU 1; PG 5; PO 16, 24; SP 17, 35, 41, 65; SY 2; UK 7, 14, 20, 33

Buteo buteo/lagopus

MP: UK 4

LP: FR 4

Buteo rufinus (Cretzschmar), 1827

Long-legged Buzzard

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

MP: AZ 2; FR 202

LP: CI 41 (cf); FR 8, 11 (cf), 115, 165, 206, 213; HU 38; IS 10–11, 18, 23; LU 1; SP 83; SY 2

Buteo rufinus jansoni Mourer-Chauvire, 1975

Stratigraphic range: Middle Pleistocene (MNQ 22)

MP: FR 157

Buteo hemilasius Temminck & Schlegel, 1844

Upland Buzzard

Stratigraphic range: Late Pleistocene (MNQ 26)–present

?: CI 49

LP: CI 7

Buteo lagopus (Pontoppidan), 1763

Rough-legged Buzzard

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: BRD 73, 76; CZ 2, 6; FR 24, 84 (cf), 165, 193; HU 7 (cf), 41, 44; IT 3, 40, 46, 62, 97; MO 1; RM 16 (cf); SK 2; UK 52; UR 24

Buteo sp.

?: FR 55; IT 57

EP: SP 85 (cf)

MP: RO 7

LP: BRD 115, 126, 148 (cf); CR 19; FR 165, 206, 239?; IS 11, 19 (cf); LI 1; PO 18; RO 16, 25–26

Aquila pomarina C. L. Brehm, 1831

Lesser Spotted Eagle

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

EP: RM 2 (aff)

MP: AZ 2

LP: BU 4; IS 11, 23; RM 16 (cf)

Aquila clanga Pallas, 1811

Greater Spotted Eagle

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

MP: AZ 2; FR 157

LP: BRD 70; FR 116, 154; IS 15; IT 40; SY 2

Aquila nipalensis Hodgson, 1833

Steppe Eagle

No fossil record, but see below.

Aquila rapax (Temminck), 1828

Tawny Eagle

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

EP: FR 187 (cf)

MP: AZ 2; CZ 41 (aff)

LP: BRD 106; CI 7; JO 9 (cf); MO 3

Most of these records have been published as *Aquila rapax* but according to present nomenclature at least the Late Pleistocene records presumably refer to *Aquila nipalensis* Hodgson, 1833, which was formerly considered a subspecies of *Aquila rapax*. The species (in this case *Aquila rapax, sensu stricto*) has also been recorded from the Early Pleistocene/Late Pliocene of Olduvai, Tanzania (Stresemann *vide* Harrison 1979d).

***Aquila heliaca* Savigny, 1809**

Imperial Eagle

Stratigraphic range: Middle Pleistocene (MNQ 21/23)–present

?: JA 14 (cf)

MP: AU 7 (cf); AZ 2; CI 9

LP: AU 18; CH 10; GE 11; HU 22; IT 40, 99; RM 33

***Aquila adalberti* C. L. Brehm, 1861**

Adalbert's Eagle

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: SP 41

***Aquila chrysaetos* (Linnaeus), 1758**

Golden Eagle

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: FR 179; IT 9, 55; MA 5

EP: HU 66 (cf); IS 35

MP: AZ 2; CI 28; CZ 53 (cf); FR 54, 59 (cf), 67, 69, 78, 147–148, 171, 197, 242 (cf); GE 9; IT 120

LP: AU 20; BRD 7, 106, 115, 131; BU 1, 4; CH 10–11, 14, 17, 25, 27; CI 7; CR 13, 18; CZ 2, 6, 32, 37; EG 18; FR 4, 8, 15, 19, 23, 26, 32–33, 38, 44, 48, 69, 76–77, 86, 90, 95, 99, 112, 115 (cf), 124, 129, 133, 140–141, 144, 149–150, 156, 165, 170, 172, 174, 182, 185, 188, 193, 206, 213, 215, 220–221, 224 (cf), 227–228, 230, 240, 245, 247, 250; GE 8, 20; GR 10, 16, 21 (cf); HU 30, 38; IS 11, 15; IT 1, 3, 14–16, 35, 40, 46–47, 49, 52, 55, 59, 61–62, 67, 73–74, 97, 108–109, 117, 119; JO 9; LI 2 (cf); MO 1; RM 12, 24; SL 3; SP 4, 7 (cf), 12, 16, 22–23, 28, 30 (cf), 37, 42, 65, 68–69, 83; SR 1; UK 20, 29, 52; UR 8, 24, 28

There is a record from the late Blancan/early Irvingtonian of Vallecito Creek, California (Becker 1987).

(+) *Aquila chrysaetos bonifacti* Mourer-Chauviré, 1975

Stratigraphic range: Middle Pleistocene (MNQ 22)

MP: FR 67 (cf), 157, 197 (cf)

(+) *Aquila chrysaetos simurgh* Weeseie, 1987

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: GR 10

A large insular form confined to Crete, which presumably became extinct when its prey, probably *Candiacervus* deer and perhaps juvenile dwarf elephants *Elephas creticus* and *E. creutzburgi*, were exterminated.

***Aquila* sp.**

?: CZ 27; FR 93, 243; IT 79; JA 16; UK 54

EP: BU 6; CI 15; IS 35

MP: IS 20, 34; IT 82; UR 21

LP: AU 1, 11; BE 3?, 4; BRD 40, 73, 125; CH 25?; CI 10; CZ 40; FR 36, 108, 141, 143?, 159, 165, 215, 225, 229; GE 8, 12; IS 6, 16–17, 23, 28; IT 6, 27, 40, 72; LI 2–3; RO 15; SP 1, 3?–4, 38–39?, 41, 51, 55, 57; UK 39, 42

***Aquila/Buteo* sp.**

LP: SP 59

***Aquila/Haliaetus* sp.**

LP: RO 3

Hieraaetus pennatus* (J. F. Gmelin), 1788*Booted Eagle**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: AZ 2

LP: RO 3; SP 53; UK 33

Hieraaetus fasciatus* (Vieillot), 1822*Bonelli's Eagle**

Stratigraphic range: Middle Pleistocene (MNQ 23)–present

?: MA 4

MP: FR 59 (cf), 147, 157 (cf), 197

LP: CI 7; IT 40; SP 53, 64

Hieraetus pennatus/fasciatus

LP: UK 33

+*Buthierax pouliani* Kretzoi, 1977

Stratigraphic range: Middle Pleistocene (MNQ 21)

MP: GR 13

This form is based on very scanty material (a single tarsometatarsus) which should be restudied before its generic (and specific) distinctness can be definitely asserted.

Spizaetus nipalensis* (Hodgson), 1836*Mountain Hawk Eagle**

?: JA 18 (cf)

Pandion haliaetus* (Linnaeus), 1758,*Osprey**

Stratigraphic range: Middle Pleistocene (MNQ 23)–present

?: IT 9

MP: IT 113; UK 60

LP: BRD 85, 135; CH 16; EG 16; GE 9; IS 11, 18; IT 3, 46; SP 61; SY 2; UK 52; UR 27

FALCONIFORMES

Falco naumanni* Fleischer, 1818*Lesser Kestrel**

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

?: IT 23

MP: FR 157, 171, 197, 211; SP 75

LP: AU 21 (cf); FR 3, 24 (cf), 181, 215, 231 (cf), 235, 240; GE 2; GR 19; IS 11;

IT 3, 72, 106; RM 33; RO 16; SP 7, 22 (cf), 34, 53?, 59, 61; SY 2; UR 1, 24

Falco tinnunculus* Linnaeus, 1758*Common Kestrel**

Stratigraphic range: Early Pleistocene (MNQ 20)–present

?: CI 1 (cf); FR 73, 93; IT 9, 23; UK 52

EP: CZ 41; GR 13; RM 2

MP: AZ 1, 2; CI 11, 14; CZ 19, 23; FR 13, 44, 59, 147–148; GE 9; HU 19, 48; IT 50, 123; SP 10, 75; UR 15, 24

LP: AU 6, 10, 16, 18, 21, 25, 26 (cf); BE 7, 11; BH 3; BRD 16, 22 (cf), 32, 37–38, 70, 73, 76 (cf), 119, 121, 126, 142, 153; CH 1?, 22, 27; CI 7, 10; CR 12–13; CZ 2, 6, 16, 30, 37, 48–49; FR 4, 7–9, 11, 13, 15–16, 18, 23–24, 32, 38–39, 42, 44, 48, 50, 68–69, 71, 80, 86, 97, 108, 110, 112, 115, 133, 141, 144, 162, 165, 169, 172, 174, 184 (cf), 198, 210, 215–216, 219, 221, 227, 232, 235, 240, 245–247, 251, 254; GE 2, 5, 7–12, 18; GR 6, 9–10, 20–21; HU 2–3, 13 (cf), 16, 20, 24, 36–38, 41, 43–44, 47, 54; IR 3, 10; IRQ 2 (cf); IS 11, 16–17; IT 3, 14, 40, 46, 49, 55, 59, 61–62, 72–74, 86, 89?, 96–97, 109, 112; MN 1; MO 1, 3; PG 6; PO 4, 13 (cf), 18, 27 (cf), 32; RM 12–13, 16 (cf), 19, 27, 30, 33; RO 7, 16, 26; SK 2; SP 2, 4, 7–8, 13, 17, 20, 22, 28, 33, 39, 41–42, 44–45, 53, 55, 59, 61, 64, 68, 79; SR 1; SY 2; UK 2, 10, 12, 15, 20, 22, 43, 52, 55; UR 1–2, 4, 8–9, 17, 19–20, 22, 24–25, 27; UZ 1

The Early Pleistocene records may actually belong to *Falco tinnunculus atavus* (see below).

(+) *Falco tinnunculus atavus* Janossy, 1972

Stratigraphic range: Early Pleistocene (MNQ 19)–Middle Pleistocene (MNQ 24)

EP: AU 2; FR 189, 196; HU 32, 46; RM 2; SK 5

MP: AU 7; CZ 19, 33, 41; FR 54, 56, 171, 211; HU 55; PO 10; SK 4

Falco vespertinus* Linnaeus, 1766*Red-footed Falcon**

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

?: IT 23, 55

EP: HU 46 (cf); RM 2 (cf)

MP: CZ 42 (cf); FR 126 (cf), 147, 157; HU 58 (aff)

LP: BU 2 (cf); CH 27; CR 12–13; FR 38, 44, 97, 232, 236, 240; GE 2, 20; HU 20, 38, 41, 44, 47 (cf); IT 3, 46, 53, 55?, 66, 73, 97; MO 1, 3; RM 12; SP 7; UR 1, 6, 19, 24

Falco vespertinus/tinnunculus

LP: BRD 76

Falco columbarius* Linnaeus, 1758*Merlin**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: SK 2,9

MP: BRD 14; CZ 23; FR 147 (cf), 171; HU 48; IT 50, 123; UR 15, 24

LP: BRD 16, 142; CR 13; CZ 2, 6, 30, 44; FR 44, 80, 115, 192, 226?, 235; GE 8–9, 11; HU 20, 22 (cf), 36–37, 41, 44, 54; IT 97, 109; PO 11, 17, 21, 24, 29; SP 7, 28, 53; UK 52, 57; UR 24

Falco subbuteo* Linnaeus, 1758*Eurasian Hobby**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: IT 9, 57; SK 2

EP: IS 35; RM 2

MP: BRD 14; CZ 41; FR 147, 157, 171; GE 11; IT 120, 123

LP: AU 21 (cf); BRD 127 (cf), 136; CI 7; CR 11, 13, 19; FR 38, 44 (cf), 48, 58, 71, 97, 108, 116, 156, 165, 193, 210, 215, 231, 235–236, 240; GE 9, 10, 17; GR 10; HU 7, 54; IS 11; IT 3; IT 46, 59, 62, 97, 109, 112; RM 12; SP 2, 7, 41–42, 53, 59; SR 1; SY 2; UK 3, 29; UR 24, 27

Falco eleonora* Gén  , 1839*Eleonora's Falcon**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

MP: FR 147, IT 123

LP: FR 165, GR 10, 20, IT 3, 46, SP 22, 53, 61

[*Falco biarmicus* Temminck, 1825**Lanner Falcon**

No fossil record. Brodkorb (1964) reported this species from Pilissz  nt   1 (HU 38). However, Lambrecht's (1915c) *Falco lanarius* Pallas is actually *Falco cherrug* (J  nossy 1986).]

Falco cherrug* Gray, 1844*Saker Falcon**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

EP: RM 2 (aff)

MP: CZ 41 (aff)

LP: CI 7; CR 13; HU 38; SL 1; UR 1, 22

Falco rusticolus* Linnaeus, 1758*Gyr Falcon**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

MP: CZ 41 (aff)

LP: BRD 8, 70, 126; CR 19; CZ 6, 30, 37; FR 23, 144, 170, 176 (cf), 213; HU 18, 54; IT 3 (cf), 62; RO 2 (cf); SK 2; SP 33, 83

+*Falco antiquus* Mourer-Chauvir  , 1975

Stratigraphic range: Middle Pleistocene (MNQ 24)

MP: FR 171, HU 19 (cf)

This species combines characters typical of both *Falco rusticolus* and *Falco cherrug* and may be the ancestor of these two species.

Falco peregrinus* Tunstall, 1771*Peregrine Falcon**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: FR 179; IT 57

EP: IS 35 (cf); RM 2 (cf)

MP: AZ 2; CZ 41; FR 54, 148, 157, 171

LP: AU 6, 16; BRD 37, 115; CH 10, 22, 28; CR 11; CZ 6, 30, 37; EG 28; FR 4, 44, 162, 165, 169, 174, 175 (cf), 179, 193, 236 (cf), 240, 246; GE 10; GR 10; HU 7, 18, 21, 41, 47 (cf); IS 11; IT 10, 13–14, 46, 74; MO 1; PO 24 (cf), 32; RO 26; SP 4, 53, 64, 83; UK 2, 28, 33?, 53

Falco peregrinus/cherrug

LP: GE 10

Falco peregrinus/rusticolus

LP: UK 53

+*Falco chowi* Hou, 1982

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–Late Pleistocene (MNQ 26)

MP: CI 8

LP: CI 10

***Falco* sp.**

?: AU 4, CI 36, IT 7

EP: IS 35

MP: CI 14, 28; IS 34

LP: BE 12; BH 6; BRD 37, 71, 101, 126, 130, 136; BU 6; CH 3, 16, 18; FR 36, 80, 141, 165, 178, 232, 247; IRQ 1; IS 23, 29; IT 40, 54, 89; JA 5; MN 2; MO 1, 4; PO 18, 27, 32; RO 15, 27; SP 7, 17, 39, 81, 90; SR 1; UK 64

GALLIFORMES***Bonasa bonasia* (Linnaeus), 1758****Hazel Grouse**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: SK 9

MP: CZ 41; UK 69

LP: AU 16, 22, 25; BRD 2, 103 (cf), 115, 136; CR 6, 13, 16; CZ 2, 8?, 11, 16, 29, 44, 47; FR 222; HU 22, 47; RM 15, 25; RO 7, 17, 26; SP 38, 55; SR 1; UK 6, 10, 12, 57

+*Bonasa praebonasia* (Janossy), 1974

Stratigraphic range: Middle Pleistocene (MNQ 22)

MP: FR 202; HU 55; PO 10 (cf)

Probably the direct ancestor of *Bonasa bonasia*.

+*Bonasa daliannsis* (Hou), 1992

Stratigraphic range: Late Pleistocene (MNQ 26)

LP: CI 20

The name of this species may be due to an error. It is mentioned twice as *daliannsis* in the (Chinese) description but this is changed to *dalianensis* in the English summary.

***Bonasa* sp.**

LP: HU 42

Lagopus lagopus* (Linnaeus), 1758*Willow Ptarmigan**

Stratigraphic range: Early Pleistocene (MNQ 20)–present

?: AU 4; BRD 1, 35, 83, 88, 111; FR 153, 180?; IT 23, 48; SK 9; UK 52

EP: FR 189

MP: BRD 14, 39, 66, 87, 134; CZ 19, 23, 41; FR 113; HU 58 (cf), 65 (cf); PO 1, 10; RO 7; UK 69; UR 15 (cf), 21, 24

LP: AU 6, 8–10, 16–18, 21–25; BE 3–4, 7–11, 14–16; BH 3, 6; BRD 2, 4, 7–8, 13, 19, 21–22, 27–29, 32, 37–38, 40, 47, 51, 53, 58–62, 68–71, 73, 78–80, 85?, 90, 97, 99–100, 106, 110, 113, 115, 120–121, 125–128, 130–133, 138, 145, 148, 150–151, 153, 155–156, 158 (cf); CH 1–3, 7, 10–16, 19, 25, 27–28; CR 11–13, 16–19; CZ 2–3, 5–6, 8–9, 11–12, 16, 23 (cf), 24, 26, 29–32, 34, 37, 39, 42, 47–48, 50; DA 4, 8; FR 4, 6–9, 15–16, 18 (cf), 23, 26, 28, 32–33, 38 (cf), 40–41, 44, 50–69, 75, 84, 87, 95–97, 104 (cf), 108, 114–116, 119, 128, 131, 135, 138, 140–142, 144, 154–155, 158 (cf), 159, 165, 169, 170 (cf), 173–174, 176, 183, 198, 206, 222, 229, 232, 235–237, 240, 245, 248, 250; HU 1–3, 7, 9, 15–16, 18, 20–22, 36–38, 41–45, 54, 64; IR 1, 3, 5; IT 3; LU 1; MN 1, 2; MO 1–3, 5; PO 4, 6, 11, 13–14, 16–19, 21, 24–25, 27, 29, 31–32; RM 3, 6 (cf), 10, 18, 33; RO 2, 4, 6–8, 10, 13, 15–21, 26, 30, 33–34, 40–41, 44; SK 2, 7–8; SL 5; SP 2, 37, 39; SR 1; SV 1; UK 2, 6, 9–10, 12, 17–18, 20, 22, 28–29, 31, 39, 43, 47–48, 52, 54–55, 57, 63–64, 73; UR 1–2, 5, 8, 13–14, 17, 24, 34

Some of these records were originally published as *Lagopus scoticus*. The Pliocene *Lagopus [lagopus] atavus* (MN 16 (Rebielice Królewskie I)–MN 17 (Kielniki 3B)) is probably an ancestral form.

(+)*Lagopus lagopus noaillensis* Mourer-Chauviré, 1975

Stratigraphic range: Middle Pleistocene (MNQ 24)

MP: FR 171

Lagopus mutus* (Montin), 1781*Rock Ptarmigan**

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

?: AU 4; BRD 83; CZ 27, 51; IT 9, 26, 87; RM 5; SK 9; UK 52

MP: BRD 66; CZ 23; FR 113, 126 (cf), 147; HU 19, 49 (cf); UK 69

LP: AU 5–6, 9–11, 16, 19, 21–25; BE 3–4, 9, 16; BH 3, 6; BRD 5, 8, 18–19, 21, 27–28, 37–38, 40, 62, 64, 67, 70–73, 99, 106, 110, 113–114, 118–121, 125–128, 130, 132, 138, 148, 151–153, 155; BU 1; CH 1–2, 7–8, 11, 14–16, 19, 25, 27; CR 1, 3, 12–13, 16–19; CZ 2–3, 5–6, 8–9, 11, 16–17, 24, 26,

29–32, 34, 37–39, 42, 49–50; DA 5, 7; FR 6–8, 12, 16, 18 (cf), 25, 33, 40–42, 44, 47?, 71, 79, 84 (cf), 86, 95, 97, 104 (cf), 106–108, 115–116, 131, 138, 141 (cf), 142, 144, 155, 159, 165, 169, 172–174, 175 (cf), 176, 183, 186, 191 (cf), 198, 206, 210, 219, 222, 231–232, 235, 240, 245, 248, 250, 256; HU 1–3, 7, 9, 16, 18, 20–21, 24, 36–38, 41–45, 54, 64; IR 3, 11; IT 3, 8, 38, 45, 55, 59, 72, 84, 97, 109; LU 1; MN 1–2; MO 1, 3, 4–5; NO 2; PO 11, 13, 17–18, 20 (cf), 21, 27 (cf), 32; RM 3, 6, 10, 12–14, 18, 21, 29–30, 32–33; RO 10, 15, 18, 26, 40; SK 2, 7–8; SL 1–2, 4–5; SP 2, 14, 37–40, 50, 54–55, 59, 68, 72, 83; SR 1–2; UK 2, 6, 10, 12, 15, 17, 20, 22, 28–29, 39, 43, 47–48, 52, 55, 57, 63–64, 73?p; UR 1

(+) *Lagopus mutus corzezensis* Maurer-Chauviré, 1975

Stratigraphic range: Middle Pleistocene (MNQ 24)

MP: FR 171

***Lagopus* sp.**

? : BRD 83, 117

MP: BRD 57, 77, 86, 105; FR 13, 126, 171, 211; SP 75 (aff)

LP: AU 1, 26, 27; BE 3, 6, 9, 12; BH 3; BRD 2–3, 12, 16, 22, 24–25, 31, 38, 40, 44, 48–50, 56, 68, 74, 76, 89, 93?, 103, 106, 107?, 109, 112, 124, 129, 136, 143, 151; CH 1?, 17, 20, 22; CR 1, 3, 8, 18–19; CZ 7, 18, 23, 38, 44, 52; DA 1; FR 1, 15–16, 18, 33, 38–39, 44, 48, 50, 53, 58, 61, 68–70, 76, 80, 83, 87, 90, 95, 97–98, 106, 114, 139, 144, 150, 165, 172, 174, 176, 181, 184, 201, 206–207, 219, 226–228, 231–233, 235–236, 240, 245–246, 248; HU 15, 52, 56; IR 7–8, 10; PO 4, 11, 13, 14?, 17, 20–21, 27, 29, 31; RO 1, 11?; SK 10; SP 7, 37–38; UK 24, 52, 55, 59

***Lagopus/Tetrao* sp.**

LP: UK 26

***Tetrao tetrix* Linnaeus, 1758**

Black Grouse

Stratigraphic range: Early Pleistocene (MNQ 19)–present

? : BRD 1, 35, 111; IT 9, 55

EP: CZ 54; PO 26; RM 2 (cf)

MP: BRD 14, 66, 86; CZ 23, 41; FR 54, 121, 126, 147–148, 202 (cf), 211; HU 19, 58 (cf), 59, 65 (cf), 69; IT 50, 120; RO 7; UR 15 (cf), 21 (cf), 24

LP: AU 5 (cf), 6, 9, 16, 18, 21; BE 7, 10–12, 15–16; BH 4, 6; BRD 7–8, 12, 16, 18, 21–22, 32, 36–38, 40–41, 45, 55, 58–60, 62, 66; 70–71, 73, 75–76, 78, 85, 91?, 92, 93?, 98, 100–101, 106–107, 113, 115, 119–121, 126–127, 130, 132, 137–138, 143, 147, 150–151, 153, 155–156, 159; CH 1, 7, 10, 22, 24?, 27–28; CR 7, 11–13, 15–16, 18–19; CZ 1–3, 6, 12, 15–16, 25–26, 28, 30, 34, 37, 39, 48–49; FR 7, 14–15, 18, 22, 33, 38–39, 41–42, 44, 48, 52?, 68–69, 74, 79, 84, 86, 89–90, 97, 107, 115–116, 118, 131?, 140, 142, 144, 149, 155, 159, 165, 168–169, 172, 181, 207, 215–216, 222, 229, 232, 235–236, 245; GR 3; HU 1–3, 7, 14–16, 20–24, 36–44, 47, 50, 52, 54–57; IR 3; IT 3, 16, 25, 31, 38, 45–47, 55, 59, 69–72, 94, 97, 100, 109, 116, 120; LU 1; MO 1, 3–4; PO 4, 11, 13, 15, 17–19, 21, 24, 29, 31–32; RM 3–4, 6, 10, 13–14, 16,

22, 24, 27, 33; RO 7, 10, 15–17, 26, 35, 40; SK 2; SP 39, 83; SR 1, 2; UK 2?, 15, 20, 22, 29, 38, 42–43, 48, 52, 57, 73; UR 1–2, 8, 13, 17, 24

The record from PO 26 (Zabia) (MNQ 19) is probably not from the extant species but more likely from *Tetrao partium* (Mlíkovský in press). The same may well be true of the other Early Pleistocene records.

(+) *Tetrao tetrix longipes* (Maurer-Chauviré), 1975

Stratigraphic range: Middle Pleistocene (MNQ 24)

MP: FR 171

***Tetrao mlokosiewiczii* Taczanoski, 1875**

Caucasian Grouse

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

MP: GE 9

LP: AR 1, GE 5–12, 14, 16–18, RO 25, 28, 43

+ *Tetrao partium* (Kretzoi), 1962

Stratigraphic range: Early Pleistocene (MNQ 19)–Middle Pleistocene (MNQ 21)

EP: FR 238 (cf), HU 32, 33 (cf), 35, 36 (cf), 46, RM 2, SK 5

MP: AU 7 (cf); BRD 144; CZ 41 (cf); HU 55 (cf); SK 4

The birds from Stránská Skála (CZ 41) actually belong to *Tetrao tetrix*, according to Mlíkovský (in press)

***Tetrao urogallus* Linnaeus, 1758**

Western Capercaillie

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: AU 15; BRD 35; FR 120, 179; IT 9, 23, 64; SK 9

EP: CZ 10 (cf); PO 26; RM 2

MP: CR 19; CZ 23, 41; FR 126, 171, 202 (cf), 211, 216 (cf), 252 (cf); HU 58 (cf); UK 61

LP: AU 11, 16, 18, 21; BE 10–11, 15; BRD 7–8, 11–12, 16, 21, 26, 37, 51, 60, 70, 106, 115, 119, 121, 127, 132, 151?, 156, 159; CH 10, 27; CR 7, 13, 15, 18–19; CZ 2, 6, 11, 15–18, 20?, 26, 29, 34, 36–37, 39–40, 44, 48–49; FR 4, 8, 18, 27, 33, 40, 44, 58, 69, 84, 86, 96, 107, 114, 140, 150, 165, 174, 191, 231–232, 247; HU 2–3, 9, 20, 22, 24, 36, 38, 41–45, 52, 54; IT 3, 8, 10, 38, 46, 72, 109, 116; LU 1; PO 2, 4, 13, 17–18, 21–24, 29–32; RM 4, 16, 21, 30, 33; RO 7, 15–16, 26; SP 39; UK 20?, 22, 35, 54, 73

The records from the Early Pleistocene (PO 26 (Zabia) MNQ 19 and RM 2 (Betfia) MNQ 20) are probably not from the extant species, but more probably from *Tetrao praeurogallus*.

+ *Tetrao praeurogallus* Janossy, 1969

Stratigraphic range: Early Pleistocene (MN 18/MNQ 19)–Middle Pleistocene (MNQ 22)

EP: HU 32; PO 7, 28; RM 2; SK 5

MP: AU 7; BRD 30, 154; CZ 41; HU 55; PO 10 (cf)

***Tetrao* sp.**

MP: BE 1?; HU 26

LP: BE 9; HU 43; UK 26; UR 10

Tetraogallus caucasicus* (Pallas), 1811*Caucasian Snowcock**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

MP: GE 11 (cf), 19 (cf)

LP: GE 9, 14, RO 25, 38, 43

Tetraogallus altaicus* (Gebler), 1836*Altai Snowcock**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: RO 40

Alectoris chukar* (Gray), 1830*Chukar**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

EP: CI 15

MP: GE 9; IS 34

LP: CI 7, 10, 20; EG 36; GE 5, 9, 17–18, 21; IRN 2; IRQ 1, 4; IS 1, 7, 9–11, 15–18, 23, 26, 29; JO 3, 6, 9; LI 2; SY 2

It is doubtful whether the closely related species *Alectoris rufa*, *graeca* and *chukar* can be separated osteologically. Most determinations have probably been made on “in-this-area-it-must-be-that-species” basis.

Alectoris graeca* (Meisner), 1804*Rock Partridge**

Stratigraphic range: Middle Pleistocene (MNQ 22/23)–present

?: IT 7, 23, 48, 55

MP: AZ 2; FR 59, 67 (cf), 134 (cf), 211, 242 (cf); IS 34; IT 113; MA 4 (cf)

LP: AU 3; BH 1; BU 1, 3; CR 13, 19; FR 11, 29, 38, 41, 77 (cf), 90, 100, 133, 162, 165, 217, 220, 231, 235, 240; GE 6; GR 3, 8–9; HU 41; IRN 1; IRQ 2; IS 2 (cf), 29; IT 3, 8, 13, 16, 18, 36, 46, 47, 49, 52–53, 55, 59, 61, 72–74, 97, 104, 106, 109, 112, 116, 120; KA 1; LI 1; LU 1; MN 2; RM 4; RO 25; SP 7–8, 20 (cf), 42, 50, 64–65, 72; UR 8?; UZ 1

See comments under *Alectoris chukar* regarding identification of osteological material.

(+) *Alectoris graeca martelensis* Mourer-Chauviré, 1975

Stratigraphic range: Early Pleistocene–Middle Pleistocene (MNQ 24)

EP: IT 78

MP: FR 171

(+) *Alectoris graeca mediterranea* Mourer-Chauviré, 1975

Stratigraphic range: Early Pleistocene (MNQ 20?)–Middle Pleistocene (MNQ 24)

EP: GR 13; IT 78

MP: FR 147–148, 157, 197, 211; GR 13; RO 38

Alectoris graeca/rufa

MP: SP 9

LP: FR 235; SP 7

Alectoris rufa (Linnaeus) 1758,

Red-legged Partridge

Stratigraphic range: Late Pleistocene (MNQ 26)–present

?: FR 93; IT 55; 80; PG 1

MP: SP 75 (cf)

LP: FR 143, 221; IT 3, 46, 72, 106; JO 6; PG 2; SP 7, 31, 33–34, 41–42, 45–46, 53, 59, 64, 71, 90, 91

See comments under *Alectoris chukar* regarding identification of osteological material.

Alectoris barbara (Reichenow), 1896

Barbary Partridge

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

?: IT 55

MP: FR 59 (cf), 147–148, 157, 197, 211; IT 55

LP: FR 20, 38, 77 (cf), 84, 133, 141 (cf), 162; IT 52, 55; SP 1, 7, 20, 42, 50, 53, 72, 76

[+*Alectoris sutcliffei* Harrison, 1980

Stratigraphic range: Middle Pleistocene (MNQ 24)

MP: UK 64

This is a junior synonym of *Perdix perdix* (Stewart 1996 and pers. com.)]

+*Alectoris peii* Hou, 1982

Stratigraphic range: Middle Pleistocene (MNQ 21/24)

MP: CI 8

+*Alectoris baryosefi* Tchernov, 1980

Stratigraphic range: Early Pleistocene (MNQ 19)

EP: IS 35

According to Mlíkovský (1996, in press), this form should be synonymized with *Francolinus subfrancolinus* and placed in *Palaeocryptonyx* Depéret, 1892.

Alectoris sp.

EP: FR 196, 238; GR 13

MP: GR 13

LP: CZ 28; GR 21; IT 42; SP 7, 28, 44

Alectoris/Perdix sp.

LP: FR 84

Ammoperdix heyi (Temminck), 1825

Sand Partridge

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: IS 34

LP: EG 36; IS 23

***Ammoperdix* sp.**

LP: GR 21?

Fracolinus francolinus* (Linnaeus), 1766*Black Francolin**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IRN 2; IRQ 4; IS 23; SP 79; SY 2

Fracolinus pintadeanus* (Scopoli), 1786*Chinese Francolin**

MP: CI 28

+*Fracolinus subfrancolinus* Janossy, 1977

Stratigraphic range: Late Pliocene/Early Pleistocene (MN 18)–Middle Pleistocene (MNQ 21)

EP: HU 66

MP: CZ 41

According to Mlíkovský (1996) this form should be placed in *Palaeocryptonyx* Depéret 1892.

+*Fracolinus minor* Janossy, 1974

Stratigraphic range: Early Pliocene (MN 15)–Middle Pleistocene (MNQ 21)

MP: CZ 41

According to Mlíkovský (1996; in press) this form is a junior synonym of *Plio-perdix ponticus* (Tugarinov), 1940 and should be placed in *Palaeocryptonyx* Depéret, 1892.

+*Fracolinus capeki* Lambrecht, 1933

Stratigraphic range: Late Pliocene (MN 16/17 (Osztramos 7))–Middle Pleistocene (MNQ 22)

EP: AU 2; BRD 141; HU 5, 33, 35; RM 2

MP: BRD 154; CR 9–10, 14; CZ 19, 41

According to Mlíkovský (1996) this form should be placed in *Palaeocryptonyx* Depéret, 1892.

+*Fracolinus capeki villanyensis* Janossy, 1974

Stratigraphic range: Pliocene (MN 16 (Reblice Królewskie I))–Early Pleistocene (MNQ 19/20)

EP: HU 32

According to Mlíkovský (1996) this form should be placed in *Palaeocryptonyx* Depéret, 1892.

***Fracolinus* sp.**

EP: CR 12; IS 35; PO 7

Perdix perdix* (Linnaeus), 1758*Grey Partridge**

Stratigraphic range: Early Pleistocene (MNQ 19/20)–present

?: BRD 149; FR 30, 103, 137, 167, 199, 255; IT 9, 26, 55, 64, 87; SK 2, 9; SP 92; UK 52

EP: RM 2; SP 66; UR 26 (cf); 33 (cf)

MP: AU 7 (cf); AZ 1–2; BRD 14, 66; CZ 41; FR 44, 59, 152?; GE 9; HU 19 (cf), 51, 55 (cf), 65 (cf); IT 50, 76, 113

LP: AU 6, 16, 18, 21; BE 3, 7, 12, 15–16; BH 1, 3–4, 6; BRD 7, 16, 34, 37, 38, 40–41, 52, 65, 70, 73, 84, 92, 100, 106–107, 113, 115, 119–120, 127–128, 132, 142, 151, 153, 156; BU 1–2; CH 7, 25, 27; CI 41 (cf); CR 6, 11–13, 18; CZ 2–3, 6, 8, 11, 25–26, 34, 41 (aff), 46, 48–49; FR 1, 3, 7, 10–12, 15–16, 22–24, 27–28, 32–33, 38–39, 42, 44, 47–48, 50, 53, 58, 65, 69, 76, 80, 84, 86, 95, 102, 104, 106, 108, 110, 115, 122, 124, 131, 133, 138, 140, 144, 156, 162, 165–166, 169–170, 172, 174, 176, 191–192, 215–217, 219–221, 227, 231, 235–236, 240, 245–246, 251; GE 2, 5, 9–11, 15, 17–18, 20; HU 1–2, 18, 20–22, 37–38, 42, 44, 47, 54; IR 6, 9–10; IS 11; IT 3, 10, 16, 34, 38, 40, 46–47, 49, 53, 55, 59, 66, 69 (cf), 73–74, 84, 86, 95, 97, 104, 109, 112, 116; LU 1; MN 1; MO 3–4; PO 17, 22–23, 32; RM 3, 16, 27; RO 25–26, 38; SP 2, 4, 7, 15, 20, 38–39, 42, 46, 50, 55, 57, 59, 65, 68, 77, 83; SR 1; SY 2; UK 2, 6, 9 (cf), 12, 18, 20, 22, 29, 38–39, 43, 47, 52, 54, 57, 64 (cf), 73; UR 1–2, 6, 8, 19–20, 24–25

Early and Middle Pleistocene records are probably mostly from *Perdix palaeoperdix*. The true identity of the *Perdix perdix*, reported from the late Pliocene (MN 17) of Ukraine (Obitochnoe/Primorsk) (Dubrovo & Kapelist 1979), must be regarded as uncertain pending further study.

(+) *Perdix perdix jurcsaki* Kretzoi,

1961

Stratigraphic range: Early Pleistocene (MNQ 19/20)

EP: AU 2; HU 34; RM 2

MP: GR 13 (cf); HU 62 (cf)

Sometimes regarded as a separate species, *Perdix jurcsaki*.

+ *Perdix palaeoperdix* Mourer-Chauviré, 1975

Stratigraphic range: Early Pleistocene (MNQ 19)–Middle Pleistocene (MNQ 24)

EP: CI 15; FR 13 (cf), 30 (cf), 51, 69 (cf), 196, 216 (cf); GR 18

MP: FR 54, 126, 147–148, 157, 164, 171, 197, 203, 211; RO 38; SP 9–10

Presumably the direct ancestor of *Perdix perdix*.

+ *Perdix palaeoperdix/perdix*

LP: FR 98

***Perdix dauurica* (Pallas), 1811**

Daurian Partridge

Stratigraphic range: Early Pleistocene (MNQ 19)–present

EP: CI 15

MP: CI 8

Brodkorb (1964) also mentions this species from Sjava-osso-gol (CI 41). However, in the original reference (Bate 1931) the species is identified as *Perdix cf. perdix*.

***Perdix* sp.**

?: CI 36

MP: FR 147; IS 34

LP: CI 20; CZ 40; FR 84, 165; IS 10; PG 2

+*Palaeocryptonyx donnezani* Depéret, 1892

Stratigraphic range: Early Pliocene (MN 15 (Perpignan))–Middle Pleistocene (MNQ 21)

EP: CZ 54

MP: CZ 55

+*Palaeocryptonyx* sp.

EP: FR 204; IT 22; SP 85

Coturnix coturnix* (Linnaeus), 1758*Common Quail**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: BRD 35; FR 55, 62, 93, 200; IT 7, 23, 37; SK 9

EP: CI 15; HU 46 (cf); SP 74 (cf), 84 (cf); UR 26 (cf)

MP: AU 7 (cf); BRD 144 (cf); CI 8, 11, 14, 28; CZ 41, 55; FR 37, 54, 126, 147–148, 157, 171, 177, 202, 211; HU 48, 58–59; IS 20, 34; IT 75; MA 4; MR 2; RO 38; SP 10, 75; UR 15, 21 (cf)

LP: AU 16, 18, 21; BE 7; BH 3; BRD 7, 21, 73, 92, 115, 118, 153, 158; BU 1–3; CI 7, 10, 20; CR 12–13; CZ 6, 8, 11–12, 17, 41 (cf), 48; FR 8, 11, 15, 24, 32–33, 41–42, 44–45, 48, 58, 69, 80, 84, 95, 97, 106, 133, 162, 169–170, 172, 176, 191, 215, 221, 226–227, 231, 235–236, 240; GE 5–6, 9, 11, 18; GR 9–10; HU 14, 21–22, 37–38, 41–44, 47, 54; IR 5; IS 10–11, 15–18, 23; IT 1, 3, 13, 38, 40, 46–47, 49, 55, 59, 72, 86, 97, 112; JA 12; JO 9; LU 1; MA 4; MO 1; PO 13, 18; RM 6, 12–13, 33; RO 25, 27; SP 7–8, 20–21, 27(cf), 28, 31, 33, 41, 44, 59, 61, 65, 77, 90; UK 12, 63; UR 1–2, 8, 24, 27, 34

+*Coturnix gomeræ* Jaume, McMinn & Alcover, 1993

Stratigraphic range: Late Pleistocene (MNQ 26)–subrecent?

LP: SP 17

+*Coturnix* nov spp.

LP: PG 5–6

***Coturnix* sp.**

?: IR 9

LP: CI 41

Bambusicola thoracica* (Temminck), 1815*Chinese Bamboo Partridge**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: CI 8, 14

LP: CI 7

***Bambusicola* sp.**

MP: CI 28

Tragopan temminckii* (Gray), 1831*Temminck's Tragopan**

?: CI 49

Pucrasia macrolopha* (Lesson), 1829*Koklass Pheasant**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: CI 8

LP: CI 7

Gallus gallus* (Linnaeus), 1758*Red Junglefowl**

Stratigraphic range: Late Pleistocene (MNQ 26) ?–present

?: FR 88; IR 1, 4, 6–7, 9–10; IT 5, 87; UK 52

MP: FR 13, 56; UK 16; UR 15

LP: AU 21–22; BRD 26–27, 52, 62, 107, 155–156; CR 19; CZ 45; FR 8–10, 38, 42, 68, 84, 89, 96, 101, 108, 115, 159?, 169, 173, 217, 240, 246; IR 1, 5; IT 66; PO 23, 32; RM 3, 12, 21–22; SR 1; UK 12, 18, 31, 39; UR 9

The vast majority of these records (and also of *Gallus* sp. below) are undoubtedly due to stratigraphically displaced subrecent bones of domestic fowl. However, since there seems to be no doubt that *Gallus* occurred in the Late Pleistocene of Transcaucasia and the Levant, the possibility that *Gallus* occurred in southern Europe during earlier interglacials cannot be entirely discounted. *Gallus gallus* has also been reported from the Late Pleistocene of Dieu, Vietnam (Boev 1995).

(+) *Gallus gallus levantinus* Pichon & Tchernov, 1987

Stratigraphic range: Late Pleistocene (MNQ 26)

LP: IS 16

+ *Gallus europaeus* Harrison, 1978

Stratigraphic range: Middle Pleistocene (MNQ 22)

MP: UK 49

The validity and age of this form are questionable.

+ *Gallus karabachensis* Burchak-Abramovich, 1989

Stratigraphic range: Middle Pleistocene (MNQ 22/23)

MP: AZ 1

+ *Gallus kudarensis* Ganya & Burchak-Abramovich, 1992

Stratigraphic range: Middle Pleistocene (MNQ 24/25)

MP: GE 9

This is a *nomen nudum*.**+ *Gallus cf aesculapi* Gaudry, 1862**

MP: SP 5

***Gallus* sp.**

? : AU 4; BRD 35, 82, 111; CI 35; FR 82, 139; IT 9, 65?

MP: BRD 14; FR 113; GE 9; IS 34?

LP: AU 16; BE 14; BRD 18?, 115, 138; FR 22?, 108, 140–141, 228, 231; GE 3, 6–7, 9, 13; IT 3?; GE 3, 6–7, 13; IT 3, 54; MO 1, 4; PO 14?, 35; SP 31

+*Pavo bravardi* (Gervais), 1849

Stratigraphic range: Pliocene (MN 15 (Serrat-d'en-Vacquer))–Late Pliocene/
Early Pleistocene (MN 18)

EP: FR 238

Crossoptilon mantchuricum* Swinhoe, 1863*Brown Eared Pheasant**

No definite fossil record. Mentioned by Shaw (1935) from Choukoutien, but not identified from there by Hou (1993). Shaw's record probably refers to *Crossoptilon jiai* Hou q. v.

+*Crossoptilon jiai* Hou, 1982

Stratigraphic range: Early Pleistocene (MNQ 19)–Middle Pleistocene (MNQ 24/25)

EP: CI 15

MP: CI 11

***Crossoptilon* sp.**

? : CI 49

MP: CI 22

Syrmaticus soemmerringii* (Temminck), 1830*Copper Pheasant**

? : JA 8, 10, 16

[*Syrmaticus reevesii* (Gray), 1829**Reeves's Pheasant**

No definite fossil record. Mentioned by Shaw (1935) from Choukoutien, but not identified from there by Hou (1993).]

Phasianus colchicus* Linnaeus, 1758*Common Pheasant**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

? : FR 30; JA 16; 18 (cf)

EP: CI 15

MP: CI 8, 11, 14, 28; GE 9; RO 38

LP: BH 6; BRD 118 (cf); CI 7, 10, 20; CR 12–13, 19; FR 88?; GE 5, 9, 12, 14; IR 1?, 4?, 6?, 9?–10; IS 11, 17; IT 3; KA 1; SR 1; UK 2, 12?, 39, 43?; UR 24

Many of these records (particularly those from the Late Pleistocene) are presumably stratigraphically displaced subrecent bones or are due to faulty identification. In historical times it is uncertain whether pheasants occurred naturally farther west than Transcaucasia, though a wider distribution in the West Palearctic at some stage of the Pleistocene is certainly possible.

+*Phasianus hermonis* Bate, 1927

Stratigraphic range: Middle Pleistocene (MNQ 24)

MP: IS 20

+*Phasianus yanshansis* Huang & Hou, 1984

Stratigraphic range: Late Pleistocene (MNQ 26)

LP: CI 56

[+*Phasianus nicheti* Gaillard, 1933

LP: FR 118

A nomen nudum, and probably not a pheasant.]***Phasianus* sp.**

?: BRD 82; CI 49, 57; JA 1, 14–15

MP: CI 28

LP: BRD 68, 136; FR 17, 245; LU 1; SP 42, 62; UK 2?

***Phasianus/Gallus* sp.**

?: CI 35

Chrysolophus pictus* (Linnaeus), 1758*Golden Pheasant**

?: CI 35 (cf)

Chrysolophus amherstiae* (Leadbeater), 1829*Lady Amherst's Pheasant**

?: CI 49

Numida meleagris* (Linnaeus), 1758*Helmeted Guineafowl**

No certain fossil record. but see below. A record from Pilisszántó 1 (HU 38) mentioned by Brodkorb (1964) is actually from the Holocene (Lambrecht 1915c).

***Numida* sp.**

LP: MR 4

This record is very likely of *Numida meleagris*, which occurs in Morocco today.

Meleagris gallopavo* Linnaeus, 1758*Wild Turkey**

Stratigraphic range: subrecent–present

?: IR 6, 9–10

LP: AU 21; IR 5; UK 2

These records—even those ascribed to the Late Pleistocene—are certainly from subrecent (post-1492 AD) birds.

GRUIFORMES***Turnix sylvatica* (Desfontaines), 1787****Small Button-quail**

LP: EG 5 (cf)

Turnix tanki* Blyth, 1843*Yellow-legged Button-quail**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: CI 7, 10

Rallina eurizonoides* (Lafresnaye), 1845*Slaty-legged Crake**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: JA 12

Gallirallus okinawae* (Yamashima & Mano), 1981*Okinawa Rail**

LP: JA 12 (cf)

Rallus aquaticus* Linnaeus, 1758*Water Rail**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: IR 1; IT 7, 23, 26

EP: IS 35

MP: CI 8; CZ 41; FR 126, 147 (cf), 148, 171; GR 2; IT 76, 123

LP: AU 10, 16, 21; BE 7?; BH 3; BRD 38, 40, 73, 115, 121, 126, 132; BU 1, 2; CR 11–13, 19; CY 1; CZ 2, 6; FR 8, 33, 44, 48, 58, 97, 150, 169, 215, 227, 232; HU 21–22, 36, 38, 41, 44, 47, 54, 57; IR 4, 6, 9; IS 11, 16–18; IT 3, 16, 47, 59, 71–72, 97; JA 12 (cf); JO 5; PO 13, 29; RM 33; SK 2; UK 43; UR 17, 34

***Rallus* sp.**

?: FR 200

MP: CI 8

LP: HU 14; JA 9; SP 61

Porzana porzana* (Linnaeus), 1766*Spotted Crake**

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

?: SK 2

EP: SP 74 (cf)

MP: BRD 66, 144 (cf); CI 14; CZ 41 (cf); FR 148, 157, 171, 197; SP 9

LP: BE 3; BRD 16, 33, 38, 90, 158; BU 1; CZ 2, 6, 12, 37, 49; FR 44, 58, 221; GR 10; HU 20, 38, 41, 44, 54; IS 11; IT 46, 47, 55, 71, 72; PO 13, 18; SP 7; SY 2; UK 20, 33; UR 1, 17, 24

Porzana parva* (Scopoli), 1769*Little Crake**

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

?: FR 93?; IT 37 (cf)

EP: HU 5 (cf)

MP: CZ 37 (cf); FR 147 (cf), 157, 171

LP: FR 44

Porzana parva/pusilla

LP: BU 2; FR 235; UK 22

Porzana pusilla* (Pallas), 1776*Baillon's Crane**

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

MP: FR 157; SP 10 (cf)

LP: EG 5 (cf)

Porzana fusca* (Linnaeus), 1766*Ruddy-breasted Crane**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: JA 12

***Porzana* sp.**

MP: AZ 2; CZ 41; FR 148, 211

LP: BRD 21; CR 12–13; IS 10; RO 16

The birds from Stránská skála (CZ 41) are from a form larger than *Porzana porzana*, probably an extinct species (Mlíkovský in press)

Crex crex* (Linnaeus), 1758*Corn Crane**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: FR 200; IR 4, 7, 9–10; IT 7, 23

EP: IS 35; RM 2 (cf); SP 66

MP: BRD 66; CZ 23, 41; FR 126, 147–148, 171, 211; IS 34; IT 50, 113

LP: AU 6, 13, 16, 18, 21, 24; BE 3; BRD 21, 32, 38, 70, 73, 115, 121, 126, 148; BU 2; CH 1?, 22; CZ 2, 6, 11–12, 25, 34, 37; FR 7, 18, 33, 41–42, 44, 48, 58, 69, 84, 97, 118, 221, 227; GE 6, 18; GR 20 (cf); HU 2, 7, 14, 18, 20, 22, 27, 36–38, 41, 44, 54; IR 5; IRN 1; IS 10–11, 16–17; IT 3, 46–47, 55, 59, 69–72, 97, 109, 112; PO 13, 15, 18, 24, 32; RM 13, 16, 18, 33; SK 2; SP 55, 61; UK 20, 48; UR 1, 17, 24

A record from Olduvai, Tanzania (Harrison 1980c) of latest Pliocene (1.74–1.9 MA BP) date is presumably from a migrant Palearctic bird.

Gallinula chloropus* (Linnaeus), 1758*Common Moorhen**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: FR 244; IT 7

MP: CR 19; CZ 33 (aff); IS 34; UK 68; UR 21

LP: AU 22 (cf), 23 (cf), 25; BRD 73; BU 1; CR 13, 19; CZ 2; EG 5; FR 39, 116, 144; GR 10; IR 5, 6, 9; IS 11, 18; IT 46, 55; JA 12; PO 18; RM 14; RO 26; SP 42; UK 15, 52; UR 1

This species is mentioned by Brodkorb (1967) from the Blancan (Pliocene) of Hagerman, Idaho but Becker (1991) lists this form as *Gallinula* sp. A record from Olduvai, Tanzania (Harrison 1980c) is of Latest Pliocene (1.74–1.9 MA BP) date.

+*Gallinula gigantea* Tchernow, 1980

Stratigraphic range: Early Pleistocene (MNQ 19)–Middle Pleistocene (MNQ 21).

EP: IS 35

MP: CZ 41

Porphyrio porphyrio* (Linnaeus), 1758*Purple Swamp-hen**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

EP: IS 35

MP: SP 82

LP: EG 29, 36; IS 18

Fulica atra* Linnaeus, 1758*Eurasian Coot**

Stratigraphic range: Early Pleistocene (MNQ 20)–present

?: IT 111

EP: GR 13

MP: AZ 2; CZ 33 (aff), 41; IT 75, 90, 118; SP 5 (cf); UK 16

LP: BRD 73, 148; CR 12, 13; CZ 2; EG 33–35; FR 42; GR 6; IR 3, 6; IRN 1; IS 11, 18, 23; IT 3, 13, 40, 46–47, 59, 72; JA 12; JO 6; PO 18; RM 27; SP 41, 64; UK 20, 27, 43; UR 2, 8

Fulica cristata* J. F. Gmelin, 1789*Red-knobbed Coot**

Stratigraphic range: Late Pleistocene (MNQ 25)–present

LP: EG 5, SP 55

+ *Fulica stekelesi* Tchernov, 1968

Stratigraphic range: Early Pleistocene (MNQ 19)

EP: IS 35

***Fulica* sp.**

LP: JA 12

MP: AL 1

Grus grus* (Linnaeus), 1758*Common Crane**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

?: IT 9, 111; MA 4, 6, 10

MP: AZ 2; BRD 144 (cf); HU 62 (cf)

LP: AU 18; BRD 50, 90, 106; CI 7; CR 12–13; CZ 2; EG 30; FR 44, 144?, 206; GR 9; HU 29; IR 6, 9; IS 11, 18; IT 3, 18, 40, 62, 109; MA 9; NE 1, PO 18; RO 16; SP 7, 41; UK 62

Grus grus has also been reported from the Middle(?) Pleistocene of Watualang, Java (Wetmore 1940).***Grus grus*/Cygnus cygnus**

LP: BRD 2

Grus japonensis* (Müller), 1776*Red-crowned Crane**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: CI 7

Grus leucogeranus* Pallas, 1773*Siberian Crane**

Stratigraphic range: Late/Middle Pleistocene (MNQ 24/25)–present

MP: AZ 2

+ *Grus bohatshevi* (Serebrovskii), 1940

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)

MP: AZ 2

+ *Grus melitensis* Lydekker, 1890

Stratigraphic range: Late Pleistocene (MNQ 26)–Early Holocene?

?: MA 4, 6, 10

LP: MA 9

+ *Grus primigenia* Milne-Edwards, 1869Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–Late Holocene
(ca. 2,000 BP (Harrison & Cowles 1977))

MP: UK 34

LP: FR 76, 107 (cf), 108, 138, 141, 174, 206, 257; SP 11, 61

***Grus* sp.**

MP: IT 123

Anthropoides virgo* (Linnaeus), 1758*Demoiselle Crane**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: AZ 2

LP: IS 15; RO 16; SP 64; UK 52

Tetrax tetrax* (Linnaeus), 1758*Little Bustard**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: MA 1

MP: CZ 41; FR 148, 157, 171, 197; HU 59

LP: CR 12–13; CZ 2, 6; FR 12, 15, 24, 165, 231; HU 47; IS 11; IT 40, 46, 112;

MO 1, 3; PO 18; SP 7; SY 2; UK 64; UR 24

Tetrax* aff. *tetrax

?: MA 4

Neotis denhami* (Children), 1826*Denham's Bustard**

MP: EG 12 (cf)

Chlamydotis undulata* (Jacquin), 1784*Houbara Bustard**

Stratigraphic range: Late Pleistocene (MNQ 25)–present

LP: EG 5, 36; IS 11, 15; JO 9 (cf); SP 65

Otis tarda* Linnaeus, 1758*Great Bustard**

Stratigraphic range: Pliocene (MN 17 (Saint Vallier))–present

?: MA 4

MP: AZ 2; BRD 66; FR 171; HU 59; IT 75; SP 10

LP: BRD 21, 115, 148, 150; CR 13; CY 1; CZ 2, 6, 12; FR 20, 65, 77; GR 21; HU

22; IRQ 3, 4; IS 11, 18, 23; IT 3, 13, 40, 46, 59, 62; JO 9; LI 2; PO 18; SP 7,

15, 61, 65; UK 2, 29; UR 6, 27, 34

Otis tarda/lambrechtii

EP: RM 2

+*Otis kalmani* Janossy, 1972

Stratigraphic range: Early Pleistocene (MNQ 19)–Middle Pleistocene (MNQ 21)

EP: HU 5, 32; RM 2

MP: CZ 41

According to Mlíkovský (in press) the birds from Stránská skála (CZ 41) are *Tetrax tetrax*.

+*Otis lambrechtii* Kretzoi, 1941

Stratigraphic range: Late Pliocene/Early Pleistocene (MN 18)–Middle Pleistocene (MNQ 22)

EP: HU 31, 33 (cf), 66; RM 2

MP: AU 7

***Otis* sp.**

EP: FR 196

LP: BRD 124; IS 16

+*Pleotis liui* Hou, 1982

Stratigraphic range: Middle Pleistocene

MP: CI 16

The name of this species was changed to *Pleotis lius* by Hou (1993).

CHARADRIIFORMES***Haematopus ostralegus* Linnaeus, 1758****Eurasian Oystercatcher**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: BRD 106; FR 32, 169; SP 28, 64

Himantopus himantopus* (Linnaeus), 1758*Black-winged Stilt**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

MP: CZ 41

LP: HU 38; IT 46; SP 64 (cf); UR 2

Recurvirostra avosetta* Linnaeus, 1758*Pied Avocet**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

MP: IT 123

LP: CR 19; IT 49, 97

Burhinus oedicnemus* (Linnaeus), 1758*Stone-curlew**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

?: FR 179

MP: AZ 2; FR 147; SP 61

LP: FR 4, 174; SP 7

Glareola pratincola* (Linnaeus), 1766*Collared Pratincole**

Stratigraphic range: Middle Pleistocene (MNQ 24)?–present

MP: FR 171?

LP: IT 3

Glareola maldivarum* Forster, 1795*Oriental Pratincole**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

EP: CI 15

***Glareola* sp.**

LP: GR 10

Charadrius dubius* Scopoli, 1786*Little Ringed Plover**

MP: FR 147 (cf)

LP: SP 64 (cf)

Charadrius hiaticula* Linnaeus, 1758*Common Ringed Plover**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: AU 18; FR 7, 44?, 48, 236, 240, 254; PO 27; UK 12?, 14, 52

Charadrius vociferus* Linnaeus, 1758*Killdeer**

LP: SP 7 (cf)

This Nearctic species is very unlikely to turn up in the Spanish Pleistocene. Probably a faulty determination of perhaps *Charadrius morinellus* or *Pluvialis fulva*.

Charadrius alexandrinus* Linnaeus, 1758*Kentish Plover**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IT 3; UR 1?

Charadrius morinellus* (Linnaeus), 1758*Eurasian Dotterel**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: AZ 2; BRD 66 (aff); CZ 41 (aff) FR 13?, 126, 148?, 171

LP: AU 16, 25; BE 3; BRD 22, 73, 127; CZ 2, 6, 12; FR 3, 7, 44, 123, 169–170, 172, 213, 219?, 231–232, 235–236, 245; IT 3, 40, 62; LU 1; PO 11, 13; SP 7, 61 (cf); UR 17

***Charadrius* sp.**

?: CI 36

MP: CZ 41; UR 15

LP: BRD 38, 59, 85?, 126; CI 20; FR 227; GR 21; HU 20; IT 40; SP 61; UK 20

Pluvialis fulva* (J. F. Gmelin), 1789*Pacific Golden Plover**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: AZ 2

Pluvialis apricaria* (Linnaeus), 1758*European Golden Plover**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

?: IR 1?

MP: FR 171; SP 10

LP: BE 3, 7; BRD 16, 38, 73, 121; CZ 6, 37; FR 9, 11, 97, 169, 227, 236; IR 5; IT 3, 38, 40; PO 13, 18 (cf); SP 59; UK 2–3, 14, 17, 20, 52

***Pluvialis squatarola* (Linnaeus), 1758**

Grey Plover

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

MP: AZ 2; CZ 41; FR 13, 54, 147, 171, 211; UR 15

LP: AU 10; BE 3; BRD 127, 153; CZ 2, 6; FR 3, 7, 97, 169, 172, 184, 213; IR 7; IT 3, 38, 40; PO 13, 18 (cf), 21, 32; RM 21; RO 26; SP 55; UK 2, 17, 43, 47, 52, 55 (cf)

There is a record from the late Blancan (late Pliocene) of Belleville, Kansas (Becker 1987).

***Pluvialis* sp.**

MP: BRD 144

LP: BRD 126; FR 50; FR 183; PO 21; SP 39, 61

***Vanellus spinosus* (Linnaeus), 1758**

Spur-winged Lapwing

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IS 9, 23

***Vanellus vanellus* (Linnaeus), 1758**

Northern Lapwing

Stratigraphic range: Middle Pleistocene (MNQ 21/22)–present

?: IR 4, 6, 9; IT 55; PG 1; SK 2

EP: RM 2 (cf)

MP: AZ 2; CZ 41; FR 171, 197; IT 103; SP 6, 10; UR 15, 24

LP: AU 18; BE 7?; BH 3 (cf); BRD 73, 132, 146?, 153; CH 27; CR 8, 13, 19; CZ 2, 6, 12, 16, 25, 30, 34, 37, 49; FR 7, 80, 227, 231 (cf); GE 21; HU 37, 38, 41; IS 2 (cf), 11; IT 38, 40, 46, 55, 97; RO 16, 26; SP 31, 39, 45, 53, 55, 61, 72, 83; UK 2, 12?, 20, 22, 29, 43, 47, 52; UR 1, 17, 30

Vanellus vanellus/Pluvialis squatarola

LP: PO 13, 21

***Vanellus* sp.**

EP: GE 2

LP: IT 19, 89

***Calidris canutus* (Linnaeus), 1758**

Red Knot

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

?: UK 52

MP: FR 171

LP: FR 169, 172, 216 (cf); GR 10, 20 (cf); IT 3, 62; SP 7, 55; UK 20, 22?, 43, 52

***Calidris alba* (Pallas), 1764**

Sanderling

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: FR 97, 144

Calidris mauri* (Cabanis), 1857*Western Sandpiper**

No fossil record from the Palearctic, but recorded from the Late Pleistocene of Ecuador (La Carolina (Campbell 1976)), Peru (Talara Tar Seeps (Campbell 1979)) and California (San Miguel Island (Jefferson 1991)).

Calidris ruficollis* (Pallas), 1776*Red-necked Stint**

No fossil record from the Palearctic, but reported from the Late Pleistocene of South Australia (Victoria Fossil Cave (Baird et al. 1991)). This was presumably a wintering bird from the eastern Palearctic.

Calidris minuta* (Leisler), 1812*Little Stint**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: BRD 73; IT 3

Calidris aff. minuta

LP: FR 11

Calidris temminckii* (Leisler), 1812*Temminck's Stint**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: FR 50 (cf); IT 76

Calidris melanotos* (Vieillot), 1819*Pectoral Sandpiper**

No fossil record from the Palearctic, but recorded from the Late Pleistocene of Oregon (Fossil Lake (Lundelius et al. 1983)), Kansas (Jones Sink (Brodkorb 1967)), Brazil (Lapa da Escrivania (Brodkorb 1967)), Ecuador (La Carolina (Campbell 1976)) and Peru (Talara Tar Seeps (Campbell 1979)).

Calidris ferruginea* (Pontoppidan), 1763*Curlew Sandpiper**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: AU 10; FR 11 (aff), 39 (cf); IT 3, 38; PO 21; SP 28

Calidris maritima* (Brünnich), 1764*Purple Sandpiper**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: NO 2; SP 39

Calidris alpina* (Linnaeus), 1758*Dunlin**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

?: SK 2?

MP: BRD 14; CZ 41 (aff); FR 171; SP 10

LP: BRD 73, 131, 147?; FR 11, 58 (cf), 169, 172, 219?; HU 38; IT 38; RO 16; SP 55; UK 3, 20, 44

***Calidris* sp.**

MP: AZ 2; CZ 41

LP: BRD 21, 38; FR 80; SP 55

Limicola falcinellus* (Pontoppidan), 1763*Broad-billed Sandpiper**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: UR 17

Philomachus pugnax* (Linnaeus), 1758*Ruff**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

EP: UR 35 (cf)

MP: AZ 2; CZ 41; UR 15

LP: AU 16, 25; BRD 16?, 21, 53, 106, 131; CR 13; CZ 2, 6; FR 50, 58; HU 38, 54;
IT 40, 73; PO 32; RO 16; SY 2; UR 1**(+) *Philomachus pugnax rhyphaeicus* Potapova, 1990**

Stratigraphic range: Late Pleistocene (MNQ 26)

LP: RO 26

Philomachus aff pugnax

MP: CZ 41

+ *Philomachus binagadensis* (Serebrovskii), 1940

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)

MP: AZ 2

Lymnocyptes minimus* (Brünnich), 1764*Jack Snipe**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

MP: CZ 41; FR 171

LP: AU 22; BRD 16, 73, 106; CZ 2; FR 58, 97, 169, 236; UK 9, 12?, 43, 63

Gallinago gallinago* (Linnaeus), 1758*Common Snipe**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: IR 6,9; SK 2

MP: AZ 2; CZ 33 (cf), 41; FR 54, 59, 148, 157, 171; IT 118; SP 10

LP: AU 16; BE 3; BH 6; BRD 73, 138; CR 13, 19; CZ 2, 6, 12, 37; FR 42, 44, 74,
80, 144, 158 (cf), 169; HU 18, 38, 41; IT 1, 46; MN 2; PO 18, 32; RM 6, 27;
RO 16; 26; SP 7, 61; UK 20, 38, 52

Reported from Inglis 1C in Florida in layers of latest Pliocene age (1.8–2.0 MA BP) (S. Emslie pers. com.).

Gallinago gallinago/media

LP: BRD 119

Gallinago media* (Latham), 1787*Great Snipe**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: IT 55, 64

EP: RM 2 (cf)

MP: BRD 66 (cf); CZ 41; FR 126, 171; SP 10; UK 69

LP: AU 16, 21, 22, 25; BRD 7, 16?, 138; CZ 2, 12, 30, 49; FR 7, 25, 44, 50 (cf),
97, 129, 156, 169, 172, 176, 210, 232, 248; HU 7, 38, 41; IT 46, 55; PO 18,
21, 32; RO 26; SK 2; SP 7***Gallinago media/Tringa ochropus***

LP: PO 13, 20

Gallinago aff media

MP: HU 55

Gallinago hardwickii* (Gray), 1831*Latham's Snipe**

No fossil record from the Palearctic exists, but has been reported from two Late Pleistocene sites (Seton Rock Shelter, Victoria Fossil Cave) in South Australia (Baird et al. 1991). These were presumably wintering birds from the eastern Palearctic.

Gallinago solitaria* Hodgson, 1831*Solitary Snipe**

LP: IT 3 (cf)

***Gallinago* sp.**

EP: HU 5

LP: FR 227; IS 10; SP 21

Limnodromus scolopaceus* (Say), 1823*Long-billed Dowitcher**

No fossil record from the Palearctic exists, but recorded from the Late Pleistocene of Florida (Rock Springs, Haile XIB? (Brodkorb 1967)).

Scolopax rusticola* Linnaeus, 1758*Eurasian Woodcock**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: IR 7, 9; IT 7, 80; SK 2; SP 80

MP: AU 7 (cf); BRD 14; CI 28; CZ 41; FR 147, 171, 197, 211; IT 123; UR 15, 24

LP: AU 16, 21–22; BH 6 (cf); BRD 7, 16, 48, 60, 70, 73, 92, 115, 119, 121, 126, 153; CH 1; CI 20; CR 12–13, 16, 19; CZ 2, 6, 11, 16, 30, 37; FR 41–42, 44, 50, 53, 58, 84, 133, 144, 162, 169, 231–232, 235, 245; GR 5, 10; HU 37, 41, 44; IS 10, 18; IT 1, 3, 40, 46–47, 55, 59, 72, 97; JA 12 (cf); MO 4; PO 13, 16, 32; RM 12, 25, 31; SP 2, 11, 21–23, 39, 55, 61, 74, UK 9 (cf); UR 1–2, 9, 17

(+) *Scolopax rusticola magnus* Potapova, 1990

Stratigraphic range: Late Pleistocene (MNQ 26)

LP: RO 26

Scolopax mira* Hartert, 1916*Amami Woodcock**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: JA 9

***Scolopax* sp.**

MP: CZ 19

LP: AU 18; BH 3; BRD 28, 126; SK 8?

Scolopax ghardalamensis Fisher & Stephan, 1974 has been shown by Olson (1976) to be a junior synonym of *Coturnix coturnix*.

Limosa limosa* (Linnaeus), 1758*Black-tailed Godwit**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

?: SK 2

EP: RM 2 (aff)

MP: AZ 2?; CZ 33 (aff), 41 (aff); SP 10

LP: CR 12, 19; CZ 2, 6, 11; FR 3, 44; HU 41; IT 14; PO 18; RO 16; SP 7 (cf), 20 (cf); UK 57

***Limosa lapponica* (Linnaeus), 1758**

Bar-tailed Godwit

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: AZ 2

LP: UK 12

***Limosa* sp.**

MP: CZ 41

LP: RO 26; UK 2?

Limosa limosa and *Limosa lapponica* probably both occur in the material from CZ 41 (Stránská skála).

***Numenius phaeopus* (Linnaeus), 1758**

Whimbrel

Stratigraphic range: Middle/Late Pleistocene (MNQ 21)–present

?: IT 26; SK 2

MP: AZ 2; CZ 41

LP: AU 18; BRD 119 (cf); CZ 12; FR 7, 227; HU 22 (cf); IT 40; PO 13, 21, 32; RO 26; SP 39; UK 12?, 52

A record from Olduvai, Tanzania (Harrison 1980c) of late Pliocene (1.74–1.9 MA BP) date is presumably from a migrant Palearctic bird.

Numenius phaeopus/tenuirostris

LP: HU 2

***Numenius tenuirostris* Vieillot, 1817**

Slender-billed Curlew

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

?: IT 9

MP: AZ 2

LP: FR 40?, 144; IT 40, 47

The distribution of the few records suggests that the peculiar migration pattern of this species has a long history.

***Numenius arquata* (Linnaeus), 1758**

Eurasian Curlew

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

?: UK 52

MP: AZ 2; FR 147

LP: BRD 16; CH 22; CZ 12; EG 16 (cf); FR 8, 87 (cf), 144, 236; HU 14, 47, 54, 56; IS 15; PO 13 (cf); RO 16; SP 61; UK 2, 9 (cf), 52

***Numenius* sp.**

?: IT 7

MP: CI 14

LP: AU 21; FR 221; HU 38?, 41; IT 40; SP 39

Tringa erythropus* (Pallas), 1764*Spotted Redshank**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

EP: RM 2 (aff)

MP: AZ 2; CZ 41 (aff); SP 10

LP: CZ 2, 6; FR 44, 80; PO 21 (cf), 32; SK 2; UR 17

Tringa totanus* (Linnaeus) 1758*Common Redshank**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

?: FR 93?; IR 7; SK 9

EP: RM 2 (aff)

MP: AZ 2; CZ 41 (aff); FR 171; SP 10

LP: BE 3; BRD 16, 73, 119; CZ 6, 37; FR 4, 69, 144, 227; HU 16, 37 (cf); IR 1;

IT 3; PO 11, 13, 21, 32; RM 12–13 (cf), 19 (cf); SP 2, 59; UR 1, 17

Tringa stagnatilis* (Bechstein), 1803*Marsh Sandpiper**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: FR 147 (cf), 171, 211 (cf)

LP: SY 2

Tringa nebularia* (Gunnerus), 1767*Common Greenshank**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: AZ 2; FR 13

LP: BRD 76; CZ 6, 37; FR 71 (cf), 80; IS 10, 18; IT 46, 55 (cf); RO 26; SY 2; UK 52

Tringa ochropus* Linnaeus, 1758*Green Sandpiper**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

MP: AZ 2; BRD 144 (cf); CZ 41 (aff); UK 68

LP: BE 3 (cf); BRD 123?; CZ 2, 6, 25, 34, 37; IT 46; PO 13, 20; RO 16; UK 43;

UR 1, 24

Tringa glareola* Linnaeus, 1758*Wood Sandpiper**

Stratigraphic range: Early/Middle Pleistocene (MNQ 19/21)–present

EP: RM 2

MP: AZ 2

LP: IT 3, 38, 97; UR 1, 17; RM 18 (cf)

Tringa glareola/ochropus

EP: RM 2

***Tringa* sp.**

EP: RM 2

MP: CZ 41; CI 14

LP: AU 22; BRD 21, 113; CZ 2, 6; FR 86, 227, 235; HU 44?; IS 10; PO 21 (cf),
24 (cf)***Tringa/Philomachus* sp.**

LP: FR 141

Xenus cinereus* (Güldenstädt), 1775*Terek Sandpiper**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: AZ 2

Actitis hypoleucos* (Linnaeus), 1758*Common Sandpiper**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

EP: RM 2 (aff)

MP: AZ 2; CI 14

LP: AU 18, 21; BRD 16; CZ 49; FR 18, 50, 69, 97, 129, 172, 231 (cf); IT 97, 109; RM 13 (cf); UR 1

Arenaria interpres* (Linnaeus), 1758*Ruddy Turnstone**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

?: UK 52

MP: BRD 14?; FR 171 (cf)

LP: BRD 73; FR 115; HU 37; UK 3, 14, 52

Phalaropus lobatus* (Linnaeus), 1758*Red-necked Phalarope**

No fossil record from the Palearctic exists, but has been recorded from the Late Pleistocene of Oregon (Fossil Lake (Lundelius et al. 1983)), Ecuador (La Carolina (Campbell 1976)) and Peru (Talara Tar Seeps (Campbell 1979)).

Phalaropus fulicaria* (Linnaeus), 1758*Red Phalarope**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: CZ 33 (aff); FR 171

Stercorarius pomarinus* (Temminck), 1815*Pomarine Jaeger**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IT 3

(+)*Stercorarius pomarinus philippi* Mourer-Chauviré, 1975

Stratigraphic range: Middle Pleistocene (MNQ 24)

MP: FR 171

Stercorarius parasiticus* (Linnaeus), 1758*Parasitic Jaeger**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: BE 7; FR 76, 169; NO 2; PO 32 (cf); RO 26

Stercorarius longicaudus* Vieillot, 1819*Long-tailed Jaeger**

Stratigraphic range: Middle Pleistocene (MNQ 23?)–present

MP: IT 28

LP: BRD 106; UK 57

***Stercorarius* sp.**

LP: BRD 126

Catharacta skua* Brünnich, 1764*Great Skua**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: SP 41

Larus ichthyaetus* Pallas, 1773*Pallas's Gull**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IT 3

Larus melanocephalus* Temminck, 1820*Mediterranean Gull**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IT 38, 46; SP 7 (cf)

Larus minutus* Pallas, 1776*Little Gull**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

MP: IT 123

LP: CR 12, 19; GR 21; IS 16–17

Larus ridibundus* Linnaeus, 1766*Black-headed Gull**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: IT 7

MP: CZ 33 (cf), 41 (cf); IT 123

LP: AU 10; BRD 132; CR 12–13, 19; CZ 32; HU 2, 38, 41; IT 3, 40; SP 41, 55, 64; UR 17

Larus audouinii* Paytaudeau, 1826*Audouin's Gull**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: FR 32

Larus canus* Linnaeus, 1758*Mew Gull**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: SK 2

MP: CZ 41; FR 54, 147 (cf); UR 15

LP: BRD 16; CZ 6; FR 48, 144, 169, 198 (cf); JO 6; NO 2; PO 32; SP 37, 41, 55; UK 14, 52

Larus canus/Rissa tridactyla

LP: SP 37, 41

Larus fuscus* Linnaeus, 1758*Lesser Black-backed Gull**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: FR 126, 147

LP: FR 169, 232; IR 5; SP 41, 53, 64; UR 1

These records should probably be regarded as somewhat uncertain since it is doubtful whether the various forms in the *Larus fuscus/argentatus* complex can be separated on osteological characters.

Larus cachinnans/fuscus

LP: SP 41

Larus argentatus* Pontoppidan, 1763*Herring Gull**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: AZ 2

LP: BRD 53?; CR 12–13; CZ 32; FR 11–12, 16, 144, 165, 185, 245; GE 8; IT 40, 46; NO 1; RO 17; SP 64; UK 2; UR 7

These records should probably be regarded as somewhat uncertain since it is doubtful whether the various forms in the *Larus fuscus/argentatus* complex can be separated on osteological characters.

Larus argentatus/fuscus

LP: BRD 131, CH 22

***Larus argentatus cachinnans* Pallas, 1811**

LP: RO 35 (cf)

***Larus glaucescens* Naumann, 1840**

Glaucous-winged Gull

There is no fossil record in the Palearctic, but the species has been recorded from the Sangamonian (IS 5e) of San Pedro, California (Jefferson 1991).

***Larus hyperboreus* Gunnerus, 1767**

Glaucous Gull

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: AZ 2?

LP: FR 213; IT 3

These records should probably be regarded as somewhat uncertain since it is doubtful whether *Larus hyperboreus* and *marinus* can be separated on osteological characters.

***Larus marinus* Linnaeus, 1758**

Great Black-backed Gull

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IT 3, 40; NO 1–2; SP 41, 55

These records should probably be regarded as somewhat uncertain since it is doubtful whether *Larus hyperboreus* and *marinus* can be separated on osteological characters.

Larus marinus/hyperboreus

LP: BRD 90, 131

***Larus* sp.**

?: JA 15

MP: FR 242; GR 13

LP: AR 1; BRD 50?, 124; CR 19; CZ 2, 32; FR 80, 165; GE 12; IS 16; IT 14; MN 2; RO 10, 24, 35; SP 13; UK 33?

***Rissa tridactyla* (Linnaeus), 1758**

Black-legged Kittiwake

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: FR 7, 97, 115; IT 40, 47; NO 1–2; SP 37, 41; UK 57

***Pagophila eburnea* (Phipps), 1774**

Ivory Gull

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: NO 2

***Sterna sandvicensis* Latham, 1787**

Sandwich Tern

Stratigraphic range: Late Pleistocene (MNQ 26)–present
LP: FR 144, 232; SP 53?

***Sterna hirundo* Linnaeus, 1758**

Common Tern

Stratigraphic range: Early Pleistocene (MNQ 19)–present
?: FR 93?
EP: IS 35
MP: CZ 41 (aff); FR 147 (cf)
LP: BH 6 (cf); BRD 16; CR 12–13; CZ 49; FR 11; HU 38; RO 10, 26; SP 55; UK 43

***Sterna paradisaea* Pontoppidan, 1763**

Arctic Tern

Stratigraphic range: Late Pleistocene (MNQ 26)–present
?: IT 7
LP: FR 7, 87; IT 3

***Sterna albifrons* Pallas, 1764**

Little Tern

Stratigraphic range: Middle Pleistocene (MNQ 24)–present
MP: SP 10
LP: UR 17

***Sterna* sp.**

EP: RM 2
LP: BRD 126; JA 12; UK 47, 52

***Chlidonias hybridus* (Pallas), 1811**

Whiskered Tern

Stratigraphic range: Middle Pleistocene (MNQ 24)–present
MP: FR 147

***Chlidonias niger* (Linnaeus), 1758**

Black Tern

Stratigraphic range: Middle Pleistocene (MNQ 24)–present
MP: CZ 41 (aff); FR 171?
LP: IT 38, 46 (aff); SP 7 (cf), 39, 59; UR 24

***Chlidonias leucopterus* (Temminck), 1815**

White-winged Tern

Stratigraphic range: Late Pleistocene (MNQ 26)–present
LP: IT 46 (aff); UR 17

***Chlidonias* sp.**

?: IT 7
LP: HU 22?

***Uria aalge* (Pontoppidan), 1763**

Common Murre

Stratigraphic range: Middle Pleistocene (MNQ 21)–present
?: IR 6; JA 15
MP: UK 1, 11
LP: IT 3; NO 1–2; SP 13, 30, 33, 41, 53; UK 51

Uria lomvia* (Linnaeus), 1758*Brünnich's Murre**

Stratigraphic range: Late Pleistocene (MNQ 26)–present
 LP: NO 1–2

***Uria* sp.**

MP: FR 147
 LP: IT 40; NO 2

Alca torda* Linnaeus, 1758*Razorbill**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present
 ? : IR 9
 MP: UK 4
 LP: IT 3; NO 1; PG 3; SP 22, 41; UK 3, 44

+*Pinguinus impennis* (Linnaeus), 1758**Great Auk**

Stratigraphic range: Late Pleistocene (MNQ 26)–late Holocene (1844 AD)
 LP: FR 94, 105; IR 3; IT 2–3, 40; NO 1; PG 3, 5; PO 5; SP 41, 53, 64, 83; UK 15

Cephus grylle* (Linnaeus), 1758*Black Guillemot**

Stratigraphic range: Late Pleistocene (MNQ 26)–present
 LP: NO 1–2; UK 12, 52

Cephus columba* Pallas, 1811*Pigeon Guillemot**

No fossil record in the Palearctic is known, but has been recorded from the Late Pleistocene of San Miguel Island, California (Guthrie 1992).

Synthliboramphus antiquus* (J. F. Gmelin), 1789*Ancient Murrelet**

? : JA 15

The Ancient Murrelet has a fossil record in North America going back at least to IS 5e (San Pedro, California (Jefferson 1991)).

Alle alle* (Linnaeus), 1758*Little Auk**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present
 MP: FR 171
 LP: BRD 38; FR 44, 48; FR 227; IR 7; NO 2; PO 32; SP 39, 55, 64, 83; UK 10, 12?, 17, 43

Cerorhinca monocerata* (Pallas), 1811*Rhinoceros Auklet**

? : JA 15 (cf)

Fratercula arctica* (Linnaeus), 1758*Atlantic Puffin**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present
 MP: FR 147
 LP: IT 3–4; NO 2; SP 64; UK 17, 52–53

+Mancalla sp.

?: JA 15

This genus of large, flightless auks, the North Pacific equivalent of *Pinguinus*, has an extensive fossil record on the west coast of North America, going back at least to the Hemphillian (late Miocene) (e. g. Becker 1987).

PTEROCLIDIFORMES***Pterocles senegallus* (Linnaeus), 1771****Spotted Sandgrouse**

MP: EG 12 (cf)

LP: EG 5 (cf)

Pterocles orientalis* (Linnaeus), 1766*Black-bellied Sandgrouse**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: AZ 2

LP: CI 7; IRQ 4; IT 40, 59, 112; JO 8

Pterocles alchata* (Linnaeus), 1766*Pin-tailed Sandgrouse**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IS 11; IRQ 4; IT 40; JO 8

***Pterocles* sp.**

MP: CI 8; EG 12; SP 5

LP: EG 5; IS 11; JO 10

Syrhaptes paradoxus* (Pallas), 1773*Pallas's Sandgrouse**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: CI 8, 13

LP: CI 10, 41; CZ 34; HU 38; JO 8

COLUMBIFORMES***Columba livia* J. F. Gmelin, 1789****Rock Dove**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: CI 35 (cf); FR 243 (cf); IR 6, 9; IT 7, 9, 37 (cf), 55, 57, 107

EP: FR 196 (cf); IS 35; IT 78

MP: AZ 1, 2; CI 8, 11, 14; CR 9, 14; FR 13, 30 (cf), 37, 67 (cf), 134 (cf), 147, 177 (cf), 211–212; GE 9, 11; GR 2; IS 20, 34; IT 50, 106, 123; RO 38; UR 15, 24

LP: AU 21; BH 1, 3, 6 (cf); BRD 126, 56; CI 7, 10; CR 12–13, 15, 17, 19; CZ 6; FR 2, 10, 15, 26, 29–30, 38–39, 48, 68 (cf), 71, 79, 89, 115, 133, 141, 143–144, 148, 154–156, 162, 166, 170, 188, 206, 209, 216, 220, 231, 235–236, 240–241, 245, 249; GE 9, 20; GR 3, 21; IRN 2 (cf); IS 2 (cf), 9, 11, 16–18, 19 (cf), 23, 26, 28–29; IT 1, 3, 10, 14, 18–19, 35–36, 40, 43–44, 46–47, 55, 58–59, 61, 70, 72, 86, 96, 104, 106, 109, 112; JO 7, 9; MN 1; PG 2; RO 5, 27; SL 5; SP 4, 7, 16, 20–22, 29 (cf), 31, 33–34, 41–42, 46, 53, 55, 59, 61–62, 64–65, 71, 73, 79, 81; SR 1; SY 2; UK 2, 29, 39, 46, 57; UR 1–2, 4, 8–9, 19–20, 22, 24–25; UZ 1

Columba cf *livia* has also been reported from the late Pliocene (MN 17) of Ukraine (Obitochnoe/Primorsk) (Dubrovo & Kapelist 1979)

(+) *Columba livia minuta* Mourer-Chauviré, 1975

Stratigraphic range: Middle Pleistocene (MNQ 24)

MP: FR 59 (cf), 171

(+) *Columba livia lazaretensis* Mourer-Chauviré, 1975

Stratigraphic range: Middle Pleistocene (MNQ 24)–Late Pleistocene (MNQ 26)

MP: FR 147–148

LP: FR 148

(+) *Columba livia occitanica* Mourer-Chauviré, 1975

Stratigraphic range: Middle Pleistocene (MNQ 22)–Middle Pleistocene (MNQ 23)

MP: FR 157, 197

Columba livia/oenas

EP: SP 85

MP: IT 123; SP 10

LP: FR 80; GR 4, 6–7, 10; SP 2, 7, 45, 83, 90

***Columba rupestris* Pallas, 1811**

Hill Pigeon

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: UZ 1

***Columba oenas* Linnaeus, 1758**

Stock Dove

Stratigraphic range: Early Pleistocene (MNQ 20)–present

?: IT 7, 23, 55, 78, 107 (cf)

EP: GR 13

MP: FR 54, 59, 147 (cf)–148, 171; GR 13; IS 34; SP 9

LP: AU 16, 18, 21; CZ 6, 11, 46; FR 1, 12, 24, 38, 41 (cf), 44 (cf), 48 (cf), 95, 115, 133, 156, 165, 198, 236, 240, 245, 256; GR 7, 10; HU 17 (cf), 27; IS 16–17; IT 3, 13, 36, 40, 45–47, 53, 55, 61–62, 69 (cf), 73–74, 97, 106, 109; RO 16; SP 7, 15–16, 53, 65, 72, 81, 83; UK 28, 38, 43?, 47, 52, 54

Columba oenas/livia

MP: GR 2

LP: GR 10, 20; UK 12

***Columba palumbus* Linnaeus, 1758**

Common Wood Pigeon

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: FR 93, 244; IT 5, 7, 48, 57, 87

EP: HU 32 (aff)

MP: AU 7 (cf); CZ 41; FR 147–148, 171, 197, 211; GR 13; IT 123; SP 9; UK 60

LP: AU 16; BE 12, 15; BRD 37–38, 70, 115, 126; CH 1, 25; CZ 6, 11, 16, 34, 46; FR 32, 38, 41–42, 48, 133, 162, 191, 220, 245, 246?; GE 7, 12, 18; GR 6, 10;

HU 1, 21–22, 38, 44, 47, 54; IR 1, 6, 9; IS 11, 16–17, 28; IT 3, 36, 45–47, 51, 55, 59, 61, 72, 89, 109, 112; LI 2; MO 3, 4; PO 18, 32; RM 22, 24, 33; SP 7, 20, 27, 31, 53, 61, 81, 83; SR 1; UK 39, 52–53; UR 19, 24, 34

Columba palumbus/livia

LP: UK 12

***Columba trocaz* Heineken, 1829**

Trocaz Pigeon

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: PG 5, 6

***Columba junoniae* Hartert, 1916**

Laurel Pigeon

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: SP 17

***Columba janthina* Temminck, 1830**

Japanese Wood Pigeon

LP: JA 12 (cf)

+ *Columba melitensis* Lydekker, 1891

?: MA 4

+ *Columba congii* Hou, 1982

Stratigraphic range: Early Pleistocene (MNQ 20)

EP: CI 12

***Columba* sp.**

?: FR 30, 195; GR 12?; IT 65; SP 80

EP: CR 12

MP: IS 34; SP 10

LP: AR 1; BRD 52, 126, 128, 133, 136; CZ 25; FR 50, 95, 181, 198, 206, 231, 245; IRQ 1; IS 16; IT 6, 11, 44, 88; LI 1–3; SP 28, 39, 41, 44, 58; UK 12, 43?; UR 19; UZ 1

***Streptopelia decaocto* (Frivaldszky), 1838**

Eurasian Collared Dove

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IS 23

***Streptopelia turtur* (Linnaeus), 1758**

European Turtle Dove

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: IT 7; UK 52

MP: IS 34; IT 123

LP: AU 16; CZ 11; FR 131; IS 16–17; IT 1, 3, 59, 72?; SP 2; UR 24

Streptopelia turtur/decaocto

LP: GR 20

***Streptopelia orientalis* (Latham), 1790**

Oriental Turtle Dove

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: CI 7; JA 12

Streptopelia senegalensis* (Linnaeus), 1766*Laughing Dove**

Stratigraphic range: Late Pleistocene (MNQ 26)–present
 LP: IS 11

Streptopelia chinensis* (Scopoli), 1786*Spotted Dove**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present
 MP: CI 8
 LP: CI 10

***Streptopelia* sp.**

EP: CI 12; IS 35
 LP: IS 2, 9, 11, 19; SY 2

Oena capensis* (Linnaeus), 1766*Namaqua Dove**

Stratigraphic range: Late Pleistocene (MNQ 25)–present
 LP: EG 5

CUCULIFORMES***Clamator glandarius* (Linnaeus), 1758****Great Spotted Cuckoo**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present
 MP: IS 34

Cuculus canorus* Linnaeus, 1758*Common Cuckoo**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present
 ? : IT 7
 MP: BRD 14; CZ 41; FR 147, 157 (cf), 171, 211; HU 58
 LP: AU 10, 16, 18; CZ 2, 6, 11; FR 15, 144, 235; HU 38; IT 3 (cf), 59; SP 61

STRIGIFORMES***Tyto alba* (Scopoli), 1769****Barn Owl**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present
 ? : CZ 51; GR 12; IR 6; IT 87?; UK 52
 MP: FR 211; GR 2; IS 34; MA 4
 LP: BH 3; CH 27; CR 13, 19; FR 8, 95, 144, 165; GR 6, 10; IRQ 2; IS 10–11, 16–17; IT 14, 54–55, 72; PG 6; SP 17, 21–22, 31, 35, 91; UK 12, 47, 52

This cosmopolitan species has a fairly extensive fossil record in the Nearctic, but no site seems to be definitely older than the Late Pleistocene. Some old records of this species may possibly be misplaced since both *Tyto alba* and *Asio flammeus* have been called *Strix flammea* and it is sometimes difficult to decide to which species is being referred. The record from SP 17 (Bujero del Silo, Gomera) is from a small form, presumably *Tyto alba gracilirostris*. A small *Tyto*, distinct from *Tyto alba* which now occurs on the island, is also present in subfossil/fossil material from Madeira (Pieper fide Jaume *et al.* 1993).

+ *Tyto melitensis* (Lydekker), 1891

?: MA 4

This species was originally described as *Strix melitensis*.**+ *Tyto balearica* Mourer-Chauviré, Alcover, Moya & Pons, 1980**

Stratigraphic range: Pliocene (MN 15 (Layna, Sète))–Late Pliocene/Early Pleistocene (MN 18)

EP: SP 19, 74, 84, 86

+ *Tyto jinniushanensis* Hou, 1989

Stratigraphic range: Middle Pleistocene (MNQ 21/24)

MP: CI 28

+ *Tyto* n. sp.

Stratigraphic range: Middle Pleistocene (MNQ 21)

MP: IT 123

Otus bakkamoena* Pennant, 1769*Collared Scops Owl**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: CI 8

LP: JA 9

Otus scops* (Linnaeus), 1758*European Scops Owl**

Stratigraphic range: Early Pleistocene (MN 18)–present

?: IT 5, 9, 23; JA 16; SP 80

EP: SP 74

MP: AZ 2?; IT 123

LP: CH 7; CR 19; CZ 16, 22; FR 12, 24, 42, 50, 58, 69, 165, 181, 216, 221, 235; GR 7, 10, 20; HU 38; IS 11; IT 3, 55, 59, 61, 109; MO 1; PG 6 (aff); SP 7, 61; UR 2, 15, 24; UZ 1 (cf)

Bubo bubo* (Linnaeus), 1758*Eurasian Eagle Owl**

Stratigraphic range: Early Pleistocene (MNQ 19/20)–present

?: FR 31, 55; IT 9, 23, 55

EP: HU 32 (aff); RM 2 (aff); SP 66

MP: AZ 2; BRD 77; FR 54, 147–148, 152?, 197; HU 65; UK 23, 60

LP: AU 18–19; BE 7, 11–12; BR 1; BRD 16, 18, 26, 53, 70–71, 119, 126, 132; BU 1, 4; CH 10, 22; CI 7; CR 6, 13, 19; CZ 2, 6, 18; FR 4, 8, 15, 20, 38, 44, 65, 89, 108, 129, 131, 133, 165, 169, 174, 182–183, 198, 229, 240, 245–246, 250, 256; GE 7, 9 (cf), 11 (cf), 12; HU 16, 47, 57; IRN 1; IRQ 4; IS 18; IT 1 (cf), 3, 14, 16, 29, 46, 53, 55, 59, 61, 67, 109; JO 6; LI 2; PG 2; PO 4?, 21 (cf); RM 4, 13, 27; RO 41; SP 4, 7, 28, 39–41, 52, 55, 61, 64, 90; SR 1; SY 2; UK 10, 20, 35, 39, 43, 48; UR 13

Mlíkovský (1992b) synonymizes the Pliocene *Bubo lignitum* (Giebel), 1860 from Rippersroda 1 with *Bubo bubo*. This would extend the stratigraphic range back to MN 15/16.

(+) *Bubo bubo davidi* Mourer-Chauviré, 1975

Stratigraphic range: Middle Pleistocene (MNQ 22)

MP: FR 157

LP: SP 21 (cf)

+ *Bubo binagadensis* Burchak-Abramovich, 1965

Stratigraphic range: Late/Middle Pleistocene (MNQ 24/25)

MP: AZ 2

+ *Bubo insularis* Mourer-Chauviré & Weesie, 1986

Stratigraphic range: Late Pleistocene (MNQ 26)–present

?: IT 37 (cf), 39, 79?

LP: FR 145; IT 15, 63

The bird from Monte San Giovanni (IT 79) was identified by Lydekker (1891b) as *Bubo cf africanus*, which is, however, a very unlikely species to occur on Sardinia.

***Bubo/Nyctea* sp.**

MP: FR 59

LP: AU 25 (cf)

Ketupa zeylonensis* (J. F. Gmelin), 1788*Brown Fish Owl**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

EP: IS 35

LP: GR 10

Nyctea scandiaca* (Linnaeus), 1758*Snowy Owl**

Stratigraphic range: Early Pleistocene (MNQ 20)–present

?: BRD 88; CZ 51; FR 179, 190; SK 2

EP: FR 51

MP: AZ 2; BRD 66; FR 113, 121, 126, 147–148, 157, 171, 211; UK 36

LP: AU 6, 10, 16, 22–23; BE 6; BRD 16, 50, 62, 73, 148; CH 3, 12, 27; CR 13, 19; CZ 2, 6, 9, 12–13, 26, 28–30, 32, 37, 39, 52; FR 4–5, 7–8, 16, 23–24, 44, 48?, 49–50, 53, 58, 68, 70, 76, 80–81, 83, 87, 104, 108, 111, 115–116, 131, 138–139, 141, 144, 150, 154, 158, 165–166, 170, 174, 183, 193, 198, 201, 206, 219, 228, 229, 231–232, 239, 246, 255–256; HU 7–8, 21–22, 38, 41, 43–44; IT 3, 31, 40, 46, 62, 74, 97; NE 2; PO 21; RO 26, 42; SK 8?; SP 37, 59, 64, 81; UK 35; UR 4, 13–14, 19, 23

(+) *Nyctea scandiaca gallica* Maurer-Chauviré, 1975

Stratigraphic range: Middle Pleistocene (MNQ 22)–Middle Pleistocene (MNQ 24)

MP: FR 157, 171

LP: FR 206 (cf)

***Nyctea* sp.**

MP: FR 59

LP: CR 16; RM 9

Nyctea/Bubo sp.

LP: HU 20

Surnia ulula (Linnaeus), 1758

Northern Hawk Owl

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: BRD 66; IT 75 (cf), 123 (cf)

LP: AU 9, 16, 25; BRD 21, 37, 126; CH 27; FR 165; HU 2, 14, 20, 22, 36, 38, 41, 44; IT 3; PO 21; RO 26; SK 2; UK 52; UR 1

+ *Surnia capeki* Janossy, 1972

Stratigraphic range: Middle Pleistocene (MNQ 21)

MP: CZ 41

+ *Surnia robusta* Janossy, 1978

Stratigraphic range: Late Pliocene (Osztramos 7 (MN 16))–Early Pleistocene (MNQ 20)

EP: HU 4, 32, 46, 66

Glaucidium passerinum (Linnaeus), 1758

Eurasian Pygmy Owl

Stratigraphic range: Early Pleistocene (MNQ 20)–present

?: FR 35, IT 23

EP: AU 2 (cf); GR 13; PO 7 (cf); RM 2 (cf)

MP: AU 7; BRD 14; CZ 41 (aff); TK 1

LP: BRD 40, 156?; CZ 2, 6, 37; FR 235; HU 16?, 44; PO 31–32

Glaucidium sp.

EP: RM 2

Athene noctua (Scopoli), 1769

Little Owl

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: IT 23

EP: FR 196; IS 35; UR 31 (cf)

MP: AZ 2; CI 14; CZ 41; FR 67 (cf), 147, 171, 197, 216; GR 2; IS 34; IT 50, 120; UK 69

LP: CR 13; CZ 2, 6, 16, 49; FR 8, 58, 80, 102, 133, 136, 142?, 162, 231, 235; GE 9–10; GR 15?, 20–21; HU 38; IS 11, 23; IT 3, 46, 59, 72–73, 86, 104, 112; MO 3; PG 4; RM 18; SP 7, 16, 31, 34, 44–46, 57, 71; SY 2; UK 2; UR 2, 24, 34

(+) *Athene noctua lunellensis* Mourer-Chauviré, 1975

Stratigraphic range: Early Pleistocene (MNQ 19)–Middle Pleistocene (MNQ 24)

EP: FR 196; HU 46 (cf)

MP: FR 147–148, 197, 211, 242 (cf)

+ *Athene [noctua] veta* Janossy, 1974

Stratigraphic range: Pliocene (MN 16 (Rebielice Królewskie 1))–Late Pliocene/Early Pleistocene (MN 18)?

EP: AU 2 (cf); SP 85 (cf)

This taxon is synonymized with *Aegolius funereus* by Mlíkovský (1992b).

+*Athene cretensis* Weesie, 1982

Stratigraphic range: Late Pleistocene (MNQ 26)–Early Holocene

?: GR 1

LP: GR 4, 6–7, 10

***Athene* sp.**

LP: SP 55?

+*Athene* n. sp.

Stratigraphic range: Middle Pleistocene (MNQ 21)

MP: IT 123

***Strix aluco* Linnaeus, 1758**

Tawny Owl

Stratigraphic range: Early Pleistocene (MNQ 20)–present

?: IT 5, 9, 55, 57

EP: GR 13

MP: BRD 14; CZ 41; FR 147–148, 197, 211; GE 9; RO 7; SP 9

LP: AU 21; BH 3, 6; BRD 27, 37, 95, 132 (cf), 153; BU 4; CH 22; CR 6, 13, 16, 19; CZ 6, 11, 14, 22, 30, 35, 38, 44, 46; FR 15, 39, 42, 44, 95, 97, 133, 144, 184, 216, 231; IS 10–11; IT 3, 8, 16, 43, 46–47, 55, 59, 72, 97, 112, 116; MO 3; PO 4, 11, 13, 21, 32; RM 8, 20–21, 27; RO 7, 16, 26; SP 2, 4, 7, 16, 50, 53, 55, 59, 68, 72, 81, 91; SR 1; SY 2; UK 31, 39, 52; UR 1, 27

***Strix butleri* (Hume), 1878**

Hume's Owl

EP: IS 35 (cf)

***Strix uralensis* Pallas, 1771**

Ural Owl

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: CZ 6, 44; HU 44; IT 40; PO 21, 24; RM 16; SK 2

+*Strix intermedia* Janossy, 1972

Stratigraphic range: Middle Pleistocene (MNQ 21)–Middle Pleistocene (MNQ 22)

MP: AU 7; CZ 19, 41, 55; FR 157; HU 55

LP: SP 21 (cf)

The presence of this species at Stránská skála (CZ 41) has been questioned by Mlíkovský (in press)

***Strix nebulosa* Forster, 1772**

Great Grey Owl

Stratigraphic range: Late Pleistocene (MNQ 26)–present

MP: CZ 41 (aff)

LP: AU 16; IT 3 (cf); RM 16; RO 26

***Strix* sp.**

?: SP 80

LP: BRD 28, 45, 115, 129; CI 10; FR 165; IT 36, 62; JA 12; RO 7, 26; SP 64

Asio otus* (Linnaeus), 1758*Long-eared Owl**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

EP: RM 2 (cf)

MP: AZ 2; BRD 14; FR 147, 197; IT 50, 123

LP: AU 16, 18, 21; BE 9; BH 3 (cf); BRD 7, 21, 37, 153; CR 11–13, 19; CZ 6, 8, 14, 37, 49; FR 1, 11, 32–33, 42, 44?, 68, 86, 95, 97, 115, 144, 184, 231, 235–236, 240; HU 36, 38, 44, 47; IS 10–11; IT 3, 10, 46, 55, 61–62, 69, 71, 73, 97; JA 12 (cf); LU 1; PO 13, 24, 27 (cf); RM 13, 27; SP 4, 59, SR 1; SY 2; UK 57; UR 24

Asio flammeus* (Pontoppidan), 1763*Short-eared Owl**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: CZ 35; FR 93?; IT 9, 55

EP: HU 35 (aff); RM 2 (cf)

MP: AZ 2; BRD 14, 66; CI 8, 14; CZ 23, 41; FR 59, 126, 147–148, 157, 171, 197, 211; HU 55 (cf), 58, 65 (cf); RO 38; UK 32, 69; UR 15, 24

LP: AU 10?, 18, 22; BE 3; BH 3; BRD 2?, 16, 32, 70, 73, 135, 138?; CH 15, 27–28, CI 10, CR 12–13, 19, CZ 2, 6, 12, 22, 34, 37, 49, FR 8, 17, 33, 42, 44, 48, 58, 71 (cf), 89, 97, 115, 143–144, 162, 169, 176 (cf), 227, 231–232, 235, 240, 246; GR 4, 6–7, 10, 49, 55, 59, 72, 109; LU 1; MO 1, 3; PG 2; PO 11, 13, 18, 24, 32; RM 8, 16, 27, 33; RO 7, 16, 25–26, 38, 40; SK 2, 8?; SP 4, 7–8, 30, 37, 39, 42, 55, 61; SY 2; UK 2?, 20, 22, 43, 52, 55, 57; UR 1

Some older records of this species may possibly be misplaced since both *Tyto alba* and *Asio flammeus* have been known as *Strix flammea* and it is sometimes difficult to decide to which species is being referred.

Asio capensis* (Smith), 1834*Marsh Owl**

EP: IS 35 (cf)

***Asio* sp.**

?: FR 120; JA 16

MP: CI 28

LP: BE 9; BRD 21, 115, 119; CI 20; FR 9, 226; IS 11; JO 9; MO 1; RO 25; SY 2; UR 23; UZ 1?

Aegolius funereus* (Linnaeus), 1758*Tengmalm's Owl**

Stratigraphic range: Middle Pleistocene (MNQ 22/23)–present

MP: AZ 2; BRD 66; CZ 19 (cf), 23, 41 (aff); FR 59, 147–148, 171?, 211; HU 55 (cf)

LP: AU 18, 25; BRD 16, 37, 73, 127; CZ 6, 48; FR 18, 44?, 69, 97, 240; GR 9–10; HU 16, 20, 38, 44, 47, 54; IT 3, 97; PO 13, 24; RO 26; SP 21; UK 52; UR 24

CAPRIMULGIFORMES

Caprimulgus europaeus* Linnaeus, 1758*European Nighthjar**

Stratigraphic range: Middle Pleistocene (MNQ 23)–present

?: IT 7

MP: FR 171, 211; IT 123 (cf)

LP: CR 13; GR 10; IT 3; RO 16; UK 43?

Caprimulgus ruficollis* Temminck, 1820*Red-necked Nightjar**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: FR 148

LP: FR 42

+ *Caprimulgus capeki* Janossy, 1978

Stratigraphic range: Early Pleistocene (MNQ 19)–Middle Pleistocene (MNQ 21?)

EP: RM 2

MP: CZ 41

This name may be a junior synonym for *Caprimulgus fossilis* Capek, 1917; I have not had the opportunity to consult Capek's original (1917) description.

***Caprimulgus* sp.**

MP: EG 12

LP: BRD 147?; SP 7 (cf), 61

APODIFORMES

Apus apus* (Linnaeus), 1758*Common Swift**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: FR 93; IT 23, 37

MP: CI 8, 14; CZ 41; FR 147–148, 171; HU 55 (cf); IS 34; IT 50; RO 38; UR 9, 4

LP: AU 21; BRD 119, 126; BU 2, 4; CZ 2, 11; FR 24, 48, 69, 77, 97, 144; GR 10;

HU 20, 37, 41; IT 3, 46–47, 49, 55, 59, 61; PO 32; RM 8; RO 25; SP 20–21,

28, 33; UK 14; UR 2, 9, 20, 24; UZ 1

(+) *Apus apus palapus* Janossy, 1974

Stratigraphic range: Early Pleistocene (MNQ 20)–Middle Pleistocene (MNQ 22)

EP: HU 28

MP: AU 7

Apus apus/pallidus

MP: IT 123

LP: SP 61

Apus pallidus* (Shelley), 1855*Pallid Swift**

MP: FR 147 (cf)

Apus melba* (Linnaeus), 1758*Alpine Swift**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: IT 7, 9, 37; SP 80

MP: FR 59, 147–148, 211; HU 58 (cf); IS 20; IT 120, 123

LP: BU 2; CH 10, 22?; FR 41, 144, 162; GE 9–10; GR 10; HU 47; IRQ 1; IT 46, 58, 109, 112; KI 2; PO 29; RO 25; SP 20–22, 45, 53; UK 52; UR 20

+*Apus submelba* Janossy, 1972

Stratigraphic range: Middle Pleistocene (MNQ 21)

MP: CZ 41, FR 157 (cf), HU 55

Apus affinis galilejensis* (Antinori), 1855*Little Swift**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

MP: IS 20 (cf)

LP: IS 11

***Apus* sp.**

LP: SP 21

CORACIIFORMES***Halcyon smyrnensis* (Linnaeus), 1758****White-throated Kingfisher**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IS 16–17

Halcyon pileata* (Boddaert), 1783*Black-capped Kingfisher**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: CI 10

Alcedo atthis* (Linnaeus), 1758*Common Kingfisher**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: FR 149; IS 11; UK 43, 52

Ceryle rudis* (Linnaeus), 1758*Pied Kingfisher**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IRQ 2

cf *Ceryle maxima* (Pallas), 1769**Giant Kingfisher**

LP: IS 16

Merops apiaster* Linnaeus, 1758*European Bee-eater**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

MP: AU 7 (cf)

LP: FR 69, 235; IS 2 (cf), 11

Coracias garrulus* Linnaeus, 1758*European Roller**

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

?: IT 37?

EP: UR 35 (cf)

MP: FR 148, 157, 211

LP: BH 3 (cf); CR 13; FR 247; IS 11, 16–17; IT 13, 38, 59; SP 7, 61; SY 2

***Coracias abyssinicus* Hermann, 1783**

Abyssinian Roller

No fossil record; Lydekker (1891b) ascribed a record from Pietro Tampoia, Sardinia (IT 37) to this species, but it probably belongs to *Coracias garrulus* q. v.

***Coracias* sp.**

LP: IS 11, 19

***Eurystomus orientalis* (Linnaeus), 1758**

Dollarbird

MP: CI 11 (cf)

***Upupa epops* Linnaeus, 1758**

Eurasian Hoopoe

Stratigraphic range: Middle Pleistocene (MNQ 23)–present

?: IT 7, 87, 122?

MP: CI 14; FR 211; IS 34; SP 9

LP: BRD 127; CI 7; FR 48, 235; IS 11; PO 15; SP 21–22, 61, 72; UR 25

+ *Upupa phoeniculoides* Janossy, 1974

Stratigraphic range: Middle Pleistocene (MNQ 22)

MP: AU 7

***Upupa* sp.**

MP: CZ 41

PICIFORMES

***Jynx torquilla* Linnaeus, 1758**

Eurasian Wryneck

Stratigraphic range: Middle Pleistocene (MNQ 23)–present

EP: RM 2 (cf)

MP: FR 148, 171, 211

LP: CZ 2; FR 69, 169, 235; HU 41; IT 71; PO 32; SP 59; UR 17

***Picus canus* J. F. Gmelin, 1788**

Grey-headed Woodpecker

Stratigraphic range: Middle Pleistocene (MNQ 21/22)–present

?: SK 9

MP: CI 8, 14; CZ 41; FR 44, 54

LP: AU 16, 21, 25; BRD 37; CH 10; CR 13, 17; CZ 2, 6, 11, 44, 48; FR 84; HU 2, 22, 36–38; IT 3; RM 16

***Picus viridis* Linnaeus, 1758**

European Green Woodpecker

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

EP: HU 46 (cf)

MP: FR 13, 147, 157, 171, 211; HU 55 (cf); IT 123; SP 9

LP: AU 16; BRD 38, 73, 115; CR 13; CZ 6, 16; FR 162?; IT 112; RM 4, 31; SP 7, 33, 53; UK 43

***Picus* sp.**

LP: BRD 6, 11, 59; HU 41; LU 1

Dryocopus martius* (Linnaeus), 1758*Black Woodpecker**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: FR 18, 97, 144; GE 8, 9, 12; PO 24

Dendrocopos major* (Linnaeus), 1758*Great Spotted Woodpecker**

Stratigraphic range: Early Pleistocene (MNQ 20?)–present

?: IT 55

EP: RM 2; FR 204 (cf); SP 74 (cf)

MP: BRD 66; CI 8; CZ 41, 55; FR 147–148, 157, 171, 197, 211; HU 55; IT 50; SP 9

LP: AU 10, 18; BH 6; BRD 115, 119, 135; CH 1?; CR 16, 19; CZ 2, 6, 41 (cf), 48; FR 7, 38, 42, 58, 69, 87, 97, 204, 235; HU 16, 20–21, 37–38, 41–42, 44, 54; IR 9; IT 55; PO 32; RM 8; RO 7, 26; UK 12?, 20, 22 (cf), 29, 39, 55 (cf); UR 24

+ *Dendrocopos submajor* Janossy, 1974

Stratigraphic range: Early Pleistocene (MNQ 19)–Middle Pleistocene (MNQ 23).

EP: AU 2; HU 46; RM 2

MP: AU 7; HU 55; SP 9

Sometimes considered a temporal subspecies of *Dendrocopos major*.

Dendrocopos syriacus* (Ehrenberg), 1833*Syrian Woodpecker**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: IS 34

Dendrocopos medius* (Linnaeus), 1758*Middle Spotted Woodpecker**

Stratigraphic range: Middle Pleistocene (MNQ 23)–present

?: SK 9

EP: RM 2 (cf); UR 35 (cf)

MP: FR 147 (cf), 211

LP: BRD 101, 156; CR 13, 16; FR 69?, 144, 235; IT 112; RM 8, 23; UR 17, 24

Dendrocopos cf *medius* has also been reported from the Late Pliocene (MN 17) of Ukraine (Obitochnoe/Primorsk) (Dubrovo & Kapelist 1979, Voinstvenskii 1967).

+ *Dendrocopos praemedius* Janossy, 1974

Stratigraphic range: Late Pliocene/Early Pleistocene (MN 18)–Middle Pleistocene (MNQ 22)

EP: HU 66

MP: AU 7

Probably the direct ancestor of *Dendrocopos medius*.

Dendrocopos leucotos* (Bechstein), 1803*White-backed Woodpecker**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

MP: FR 148; IT 123

LP: AU 3, 16; BE 7?; CI 10; CZ 2, 11, 37; FR 42, 97; GR 7, 10; IT 97

Dendrocopos minor* (Linnaeus), 1758*Lesser Spotted Woodpecker**

Stratigraphic range: Middle Pleistocene (MNQ 23)–present

?: UK 52

MP: FR 147 (cf), 171, 211

LP: CR 13; FR 18; UK 52

***Dendrocopos* sp.**

LP: GE 18

Picoides tridactylus* (Linnaeus), 1758*Three-toed Woodpecker**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: FR 148

LP: BRD 37

PASSERIFORMES***Melanocorypha calandra* (Linnaeus), 1766****Calandra Lark**

Stratigraphic range: Middle Pleistocene (MNQ 22/23)–present

EP: IS 35

MP: FR 196 (cf), 211; IS 34; RO 38; SP 74 (cf)

LP: FR 33, 69?, 157 (cf), 172; IS 11, 16–17, 23; IT 47, 49, 59, 86; MO 1; PO 13, 21 (cf); SP 20–22; UR 1, 17, 24

Melanocorypha bimaculata* (Ménétries), 1832*Bimaculated Lark**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: AZ 2

Melanocorypha maxima* Blyth, 1867*Tibetan Lark**

LP: IT 3 (cf)

It seems clear that at least one *Melanocorypha* species, larger than *M. calandra*, occurred in the western Palearctic during the Late Pleistocene but the identity of this form is uncertain; *Melanocorypha yeltoniensis* or *leucoptera* seem more likely than *M. maxima* on zoogeographic grounds.

Melanocorypha leucoptera* (Pallas), 1811*White-winged Lark**

LP: BRD 119 (cf)

Melanocorypha yeltoniensis* (Forster), 1767*Black Lark**

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

MP: RO 38

LP: UR 1, 24

+*Melanocorypha gracilis* Tchernov, 1968

Stratigraphic range: Early Pleistocene (MNQ 19).

EP: IS 35

***Melanocorypha* sp.**

MP: CI 8

Calandrella cinerea* (J. F. Gmelin), 1789*Red-capped Lark**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

EP: UR 35 (cf)

MP: CI 8

LP: SP 83?; UR 17

Calandrella brachydactyla* (Leisler), 1814*Greater Short-toed Lark**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

MP: FR 126, 157, 171; IT 123

LP: FR 25, 123, 172, 215 (cf); GR 9–10

Calandrella rufescens* (Viellot), 1820*Lesser Short-toed Lark**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: AZ 2

***Calandrella* sp.**

EP: IS 35 (cf)

LP: CI 10; SP 61

Galerida cristata* (Linnaeus), 1758*Crested Lark**

Stratigraphic range: Early Pleistocene (MNQ 20)–present

?: FR 200, 218

EP: HU 46 (cf); RM 2

MP: BRD 14; CI 8, 11, 14; FR 13, 57, 126, 147, 157, 171, 211; IS 34; SP 9–10

LP: BH 3, 6; BRD 73, 89?, 138 (cf), 188 (cf), 245 (cf); CI 7, 10, 12–13; CZ 2; FR 15, 38, 44, 58, 69, 106, 156, 169–170, 172, 219, 231, 235–236; HU 38, 41; IS 11, 16–17; JO 8; MO 1; PO 13; RM 1; RO 17; SP 4, 7 (cf); UK 12, 33, 63; UR 1, 17, 24

Galerida cristata/theklae

LP: SP 61

Galerida theklae* (Brehm), 1858*Thekla Lark**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

MP: SP 75 (cf)

LP: SP 33

***Galerida* sp.**

MP: SP 75

LP: FR 178

Lullula arborea* (Linnaeus), 1758*Wood Lark**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: IT 79?

EP: SP 74 (cf)

MP: FR 54, 126, 147–148, 157, 171, 197, 211; IT 123; RO 38; SP 10, 75

LP: BE 3; BU 1 (cf); CZ 48; FR 4, 18, 30?, 38, 44, 48, 69, 71, 102, 144, 172, 231, 236; IT 3, 71, 97; PO 13, 18, 21, 32; RO 25–26; SP 2, 28, 54, 59; UK 52; UR 1, 19, 24, 29

***Lullula* sp.**

EP: BU 6

Alauda arvensis* Linnaeus, 1758*Eurasian Skylark**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: FR 93, 200, 218; IT 87; SK 2; UK 52

EP: FR 189 (cf); RM 2 (cf); UR 26 (cf)

MP: AU 7 (cf), 21; CI 8, 11, 14; CZ 41 (cf); FR 147–148, 157 (cf), 171, 211; IS 34; IT 113; RO 38; SP 10

LP: AU 6; BRD 16, 38, 73, 121, 127, 138 (cf), 148 (cf), 150 (cf); BU 1–3; CH 22; CI 7, 10; CZ 2, 6, 8, 12, 28, 41 (cf), 48; FR 4, 23, 38, 39 (cf), 44, 48, 69–70, 77 (cf), 80, 106, 149–150, 156, 166, 169, 175 (cf), 215 (cf)–216, 221, 227, 231, 236, 240, 256; IR 5; IS 11, 16–17; IT 3, 55?, 86, 106; PO 13, 16, 18, 21, 32; RO 17, 26; SP 2, 41–42, 54, 59, 61; UK 2–3, 6, 12, 14, 20, 26, 33, 38–39, 43?–44, 47, 52, 63; UR 1, 4, 17, 19, 24

+*Alauda jordanica* Tchernov, 1968

Stratigraphic range: Early Pleistocene (MNQ 19)

EP: IS 35

***Alauda* sp.**

LP: BRD 38, 133, 151, 153; CZ 49?; FR 38, 47; UR 4

Eremophila alpestris* (Linnaeus), 1758*Horned Lark**

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

?: FR 93?

EP: FR 196 (cf)

MP: BRD 66; CI 8, 11, 14; FR 157; RO 38

LP: AU 22; BE 7, BRD 73, 106; CH 27?; CZ 2; HU 14; IT 3, 97; PO 13, 21, 27, 32; RO 38; UK 12, 33?; UR 1, 17, 24

A record from the “mid Pleistocene” of Bartek quarry, Nebraska (Ducey 1992) shows that this species has a long history in North America, in good agreement with the extensive subspeciation which has taken place on this continent.

Riparia riparia* (Linnaeus), 1758*Sand Martin**

Stratigraphic range: Middle Pleistocene (MNQ 21/22)–present

MP: CI 8; CZ 41; FR 37, 148

LP: EG 5 (cf); FR 162; IT 38, 71 (cf); RM 8

Hirundo rupestris* Scopoli, 1769*Eurasian Crag Martin**

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

?: IT 9

MP: FR 54, 148, 157, 171, 211; SP 75

LP: BE 3 (cf); BRD 119, 148 (cf); BU 1 (cf); CH 22; FR 14, 16, 44–45, 48, 50, 58, 69, 84, 106, 115, 148, 162, 172, 186, 219–220, 235; GE 9, 20; HU 47 (cf); IT 3, 46, 59, 72, 97, 106, 109; SP 22, 45, 47, 52, 91

Hirundo rustica* Linnaeus, 1758*Barn Swallow**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: BRD 35, 111; FR 218; IR 7, 10; IT 79

EP: AU 2 (cf); HU 35 (cf), 46 (cf); RM 2 (cf)

MP: BRD 14, 66, 77; CI 8, 14; CZ 23, 41, 55; FR 147, 171; IT 50; RO 38; SP 9; UK 69

LP: AU 16, 21–22; BE 7 (aff); CI 15; BE 3; BRD 16?, 21, 38, 40, 44, 59, 73, 115, 121, 124, 138, 148, 150; CI 7; CR 12–13, 19; CZ 2, 6, 11, 16; FR 18, 25, 32, 41, 48, 69, 71, 79, 169, 186, 235–236, 240; GR 21; HU 20, 38, 44; IR 7; IS 11; IT 38, 40, 46, 55, 69–70, 71 (cf), 96, 112; KI 1 (cf); PO 16, 18, 21, 24; RM 19, 23; RO 25–26; SL 1; SP 2, 33–34, 37, 41, 45, 53–54, 59, 64; UK 2–3, 33, 39, 43, 47, 52, 63; UR 4, 17, 24

Hirundo daurica* Linnaeus, 1771*Red-rumped Swallow**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: FR 13, 147, 171; IS 34

LP: BRD 127; CI 7, 10; CR 12 (cf)–13(cf), FR 24, 25, 38, 58, 95, 97, 102, 144, 162, 166, 216, 231, 235; GR 10; IS 11; IT 46, 55; CI 8

Hirundo daurica/rustica

LP: AU 25

***Hirundo* sp.**

?: IT 7

EP: HU 32, 66; RM 2

MP: CI 11; HU 10, 19; IT 123; MA 4

LP: BRD 7, 32?, 124, 132 (cf); CH 1, 16; FR 23, 80, 139, 206; IS 11, 16–17, 28; IT 88; PO 17; RO 15; SP 61; UK 59, 64; UR 4

Delichon urbica* (Linnaeus), 1758*Common House Martin**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: IR 9; IT 7; UK 8

EP: RM 2 (cf)

MP: CZ 41; RO 38; UR 15

LP: AU 21–22; BU 1; CR 12; CZ 2; FR 44, 69, 144, 172, 217, 240; GR 20; IT 3, 46; RO 25–26; UK 20; UR 8, 17, 28

Anthus richardi* Vieillot, 1818*Richard's Pipit**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: UK 2?

Anthus novaeseelandiae is known from the Late Pleistocene of Australia (Baird et al. 1991) and New Zealand (Worthy & Holdaway 1993), but this is now regarded as a different species, or possibly two different species.

***Anthus campestris* (Linnaeus), 1758**

Tawny Pipit

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

EP: FR 196 (cf); IS 35 (cf)

MP: FR 171

LP: BU 1 (cf); FR 220 (cf); UR 1, 17, 24

Anthus cf campestris/spinoletta

EP: HU 28

***Anthus hodgsoni* Richmond, 1907**

Olive-backed Pipit

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: CI 20

***Anthus trivialis* (Linnaeus), 1758**

Tree Pipit

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

EP: RM 2 (aff)

MP: CZ 41 (aff); FR 171

LP: BU 2; CR 13, 16; FR 162, 210; GE 8; HU 41; IT 3; PO 18, 32; RM 19, 30; UK 12; UR 24

Anthus trivialis/campestris

LP: RM 33

***Anthus pratensis* (Linnaeus), 1758**

Meadow Pipit

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

?: FR 93; IR 10

EP: IS 35 (cf)

MP: FR 147, 148

LP: AU 21 (cf); BRD 73, 142; CZ 8; FR 20; HU 41?; IS 16–17; SP 20; UK 2, 12, 33?, 39, 46–47, 52

***Anthus cervinus* (Pallas), 1811**

Red-throated Pipit

MP: AU 7 (cf)

***Anthus petrosus* (Montagu), 1798**

Rock Pipit

No fossil record, but probably not separable osteologically from *Anthus spinoletta* q. v.

***Anthus spinoletta* (Linnaeus), 1758**

Water Pipit

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

?: FR 93?; SK 9

MP: BRD 66; CI 8; FR 13?, 147, 171; SP 75

LP: AU 21; CH 22; FR 3, 12, 44, 74, 84 (cf), 86, 215 (cf); SP 54; UK 2?, 12, 39

Probably not separable osteologically from *Anthus petrosus*.

***Anthus* sp.**

MP: CZ 41; GE 9; IT 123

LP: BE 7; CH 25; GE 17; HU 38; UK 9, 20; UZ 1?

Motacilla flava* Linnaeus, 1758*Yellow Wagtail**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: CI 8; CI 11; FR 171; IS 34

LP: CR 12–13; FR 71, 102; RM 33

Motacilla flava/cinerea

LP: CH 22

Motacilla citreola* Pallas, 1776*Citrine Wagtail**

Stratigraphic range: Middle/Late Pleistocene (MNQ 22/25)–present

MP: CI 11

Motacilla cinerea* Tunstall, 1771*Grey Wagtail**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

EP: IS 35 (cf)

MP: IS 34

LP: CR 13; IS 11; UK 12

Motacilla alba* Linnaeus, 1758*White Wagtail**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: FR 93 (cf)

EP: CI 15; IS 35; RM 2

MP: CI 14; CZ 23; FR 147, 197, 211; IS 34; RO 38

LP: AU 21 (cf); BRD 7 (cf), 73; CI 20; CR 13; CZ 12, 49; FR 41, 58, 102, 106, 162, 184, 231, 232 (cf), 256; HU 38; IS 2 (cf), 11, 16–17; PO 15; RM 1, 8; RO 16; SP 59; UK 2, 12, 33, 43; UR 2, 17

***Motacilla* sp.**

?: IR 1?, 6?, 10

MP: AU 7; CZ 41; IS 34

LP: BRD 92?, 150; FR 12; UK 20, 39?; UZ 1?

Pycnonotus xanthopygos* (Ehrenberg), 1833*White-spectacled Bulbul**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: IS 20

LP: IS 2 (cf), 23

Pycnonotus barbatus* (Desfontaine), 1789*Common Bulbul**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

EP: IS 35

MP: IS 34

LP: IS 16, 17

Hypsipetes amaurotis* (Temminck), 1830*Brown-eared Bulbul**

?: JA 16

LP: JA 9

Bombycilla garrulus* (Linnaeus), 1758*Bohemian Waxwing**

Stratigraphic range: Middle Pleistocene (MNQ 23)–present

?: IT 55

MP: FR 113, 211

LP: BH 6; CR 12–13, 16, 19; CZ 2; FR 68; HU 20; IT 55; PO 32; RM 18, 23, UK 52

***Bombycilla* sp.**

EP: HU 5

LP: BE 7 (cf), BH 3

Cinclus cinclus* (Linnaeus), 1758*White-throated Dipper**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

?: FR 93?

MP: BRD 66; FR 126, 147, 171

LP: AU 10, 16, 22; BE 3; BRD 16, 38, 40, 119, 121, 127, 136 (cf), 153; CZ 2, 17; FR 15, 24–25, 28 (cf), 44, 48, 50, 95, 106, 109, 142, 169, 172, 183, 216, 231, 235–236, 240, 245; HU 16, 38; IT 3, 38, 71; RM 22; SP 55; UK 12, 15, 52

Troglodytes troglodytes* (Linnaeus), 1758*Winter Wren**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

EP: SP 74 (cf)

MP: FR 147–148, 211

LP: CR 13, 16; FR 74, 235; IS 11; PO 32; UK 12, 22?, 47, 52

+*Troglodytes gracilis* Brunner, 1958

LP: BRD 14

This species was based on a single badly figured and inadequately described metacarpus. It is almost certainly a junior synonym of some extant small passerine.

Prunella modularis* (Linnaeus), 1758*Dunnoek**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

EP: SP 74 (cf)

MP: FR 147; IT 123

LP: AU 5, 21; BRD 123?; RM 21; SP 22; UK 2, 12?, 33?, 39, 43, 47, 52, 57; UR 1, 24

Prunella collaris* (Scopoli), 1769*Alpine Accentor**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: IT 9, 55, 87?

MP: CZ 41 (cf); FR 147–148; GR 2, 13; SP 75 (cf)

LP: AU 16, 25; BRD 16; CH 6, 22; FR 11, 16, 28, 29 (cf), 38, 44, 71, 84, 86, 144, 186, 229; GR 10; IT 3, 43, 55, 60 (cf), 109; SP 22, 34, 42

***Cercotrichas galactotes* (Temminck), 1820** **Rufous-tailed Scrub Robin**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: IS 34

LP: IS 2 (cf), 16–17

***Erithacus rubecula* (Linnaeus), 1758** **European Robin**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: FR 93; IR 1, 6, 9, 10; IT 5; UK 52

EP: SP 74 (cf)

MP: FR 147; IS 34; IT 123; UK 32

LP: AU 21, 25; BRD 123; CH 7; CR 12, 16; FR 84, 235; GE 6; GR 10; IR 1, 10; IS 11; IT 43; SP 22, 61; SR 1; UK 2, 12, 14, 39, 43?, 52, 63; UR 2, 24

***Erithacus* sp.**

LP: CH 22; JA 9; UR 19

***Luscinia luscinia* (Linnaeus), 1758** **Thrush Nightingale**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

?: IT 9, 87

MP: FR 171

LP: AU 21 (cf); BRD 38, 150?; IT 109; SP 50; UK 39?

***Luscinia megarhynchos* C. L. Brehm, 1831** **Common Nightingale**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IS 11; SP 41; UK 12; UR 2

***Luscinia svecica* (Linnaeus), 1758** **Bluethroat**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

MP: CZ 41 (cf)

LP: BRD 32; CZ 8?; IS 2 (cf), 11, 16–17

***Luscinia cyane* (Pallas), 1776** **Siberian Blue Robin**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: CI 7

***Luscinia* sp.**

LP: BRD 114; CI 7, 20; IS 2, 11

***Phoenicurus ochrurus* (J. F. Gmelin), 1774** **Black Redstart**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: AU 21–22; IS 2 (cf), 11, 16–17

***Phoenicurus phoenicurus* (Linnaeus), 1758** **Common Redstart**

Stratigraphic range: Middle Pleistocene (MNQ 23)–present

?: FR 93

MP: AU 7 (cf); BRD 66 (cf); FR 113, 147, 197

LP: BRD 73; CZ 8; FR 8, 25, 84; IS 16–17; RO 25; UK 2, 12, 20?, 52; UR 2

Phoenicurus aureus* (Pallas), 1776*Daurian Redstart**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/26)–present
 MP: CI 14

***Phoenicurus* sp.**

MP: IS 34
 LP: IS 11; SP 61

***Phoenicurus/Erithacus* sp.**

LP: CH 22

Rhyacornis fuliginosus* Vigors, 1831*Plumbeous Redstart**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present
 MP: CI 8

Hodgsonius phaenicuroides* (Gray), 1846*White-bellied Redstart**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present
 MP: CI 8

Cercomela melanura* (Temminck), 1824*Blackstart**

EP: IS 35 (cf)

Saxicola rubetra* (Linnaeus), 1758*Whinchat**

Stratigraphic range: Middle Pleistocene (MNQ 23)–present
 ? : FR 93; IR 10; UK 8
 MP: CZ 23; FR 148, 171, 211; SP 10
 LP: CZ 2, 12, 17, 37, 44; FR 44 (cf), 48, 58 (cf), 231, 235; HU 14; IR 10; RO 25;
 UK 2, 43?, 52; UR 24

Saxicola torquata* (Linnaeus), 1766*Common Stonechat**

Stratigraphic range: Late Pleistocene (MNQ 26)–present
 EP: IS 35 (cf); RM 2 (cf)
 MP: BRD 144 (cf)
 LP: IS 11

Saxicola torquata/rubetra

LP: UK 12, 29

Oenanthe oenanthe* (Linnaeus), 1758*Northern Wheatear**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present
 ? : FR 92, 93
 MP: AU 7 (cf); CZ 41 (aff); FR 126; IS 2 (cf)
 LP: AU 16 (cf), 22 (cf); BE 3; BRD 16, 32?, 73, 148 (cf); BU 4; CH 22; CZ 16,
 49; FR 9, 15, 25, 33, 38, 44, 48, 71, 102, 129, 156, 169, 231; IS 11; RO 16;
 SP 4, 54, 59; UK 3, 12, 14, 20, 33, 39?, 43?, 47, 52; UR 1, 2, 9, 13–14, 17, 24

***Oenanthe hispanica* (Linnaeus), 1758** **Black-eared Wheatear**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: FR 147; IT 123 (cf)

LP: GR 10; IS 11; SY 2

***Oenanthe finschii* (Heuglin), 1869** **Finsch's Wheatear**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IS 16–17

***Oenanthe leucura* (J. F. Gmelin), 1789** **Black Wheatear**

LP: FR 156 (cf)

***Oenanthe* sp.**

EP: FR 204; IS 35

MP: GR 2; IS 34; SP 75

LP: BE 7; GR 21; IS 11

***Copsychus saularis* (Linnaeus), 1758** **Oriental Magpie Robin**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: CI 11

***Monticola saxatilis* (Linnaeus), 1766** **Rufous-tailed Rock Thrush**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: FR 171

LP: FR 32–33, 45, 48, 156 (cf); SP 20

***Monticola solitarius* (Linnaeus), 1758** **Blue Rock Thrush**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

MP: FR 147; IT 123

LP: FR 69, 106 (cf); GR 10; IS 11; SP 21, 41, 45

A record from the Pliocene (MN 15) of Fort du Serrat, Perpignan (MN 15) (Depéret 1892; Paris 1912; Lambrecht 1933) must be considered uncertain.

***Monticola* sp.**

MP: CI 14

LP: CI 7; IS 11

***Zoothera dauma* (Latham), 1790** **Scaly Thrush**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

?: FR 93 (cf); IT 55

LP: FR 133?; GR 10; IT 3, 38, 55; JA 9

It seems clear that a turdid, larger than any species now found in the western Palearctic, occurred in the Mediterranean during the Late Pleistocene. It presumably is this form which has also been identified as *Turdus migratorius* (q. v.). *Zoothera dauma* is of course much more likely to occur in the western Palearctic than *Turdus migratorius*, but the possibility also exists that we are dealing with an extinct form.

Turdus torquatus* Linnaeus, 1758*Ring Ouzel**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: BRD 66 (cf); FR 13?, 134 (cf), 147 (cf)–148 (cf); SP 75 (cf)

LP: AU 18, 21 (cf); BRD 38, 97 (cf), 113, 119, 144 (cf); BU 2; CH 15, 25, 28; CR 13; CZ 6; FR 1, 11, 44, 58, 71, 86, 133, 165, 256; HU 22; IT 3, 38; PO 11, 16, 24 (cf), 38; SP 7–8, 20; UK 29, 52, 55 (cf)

Most of these records should probably be regarded as somewhat uncertain since it is doubtful to what extent *Turdus torquatus* and *Turdus merula* can be separated osteologically.

Turdus torquatus/merula

LP: UK 57

Turdus torquatus/pilaris

LP: PO 13

Turdus torquatus/viscivorus

LP: HU 22

Turdus merula* Linnaeus, 1758*Common Blackbird**

Stratigraphic range: Late Pliocene/Early Pleistocene (MN 18)–present

?: CR 4; FR 88, 91–93, 243; GR 12; IR 1, 6–7, 9–10; IT 5, 7, 9; SP 80?; UK 52

EP: FR 196 (cf), 204 (cf); RM 2; SP 74 (cf)

MP: AZ 2; CZ 41 (cf); FR 13, 126, 147–148, 157, 164, 171, 197, 202 (cf), 211; HU 55 (aff); IS 34; IT 50; SP 10; UK 68 (cf); UR 15, 21, 24

LP: AU 18, 21; BH 3, 6; BRD 21?, 27, 38, 71, 73, 123, 126, 132, 148 (aff); BU 2; CR 6, 8, 12–13, 16, 18–19; CZ 1–2, 6, 12; FR 3–4, 11 (aff), 14–15, 30?, 38–42, 48, 50 (cf), 58, 69, 74, 76–77, 80, 87?, 97, 99 (cf), 102, 114, 133, 139, 144, 160, 165, 169–170, 172, 176, 181, 206, 216, 222?, 230–231, 235–236 (cf), 240, 245–247; GE 6; IR 1, 5, 7–8?; IS 10–11, 16–17, 23; IT 1, 3, 43, 46–47, 55, 66, 84, 89, 96, 109, 112; LU 1; MN 2; MO 4; PO 4, 24, 32 (cf); RM 3, 8, 13, 15, 23, 27; SP 4, 7 (cf), 8 (cf), 12, 22–23, 28, 31, 33, 36–37, 41–42, 53 (cf), 54, 59, 68; SR 1; UK 1–2, 14, 20, 33?, 39, 43, 47, 52, 54, 59; UR 1–2, 9, 25, 27, 34; UZ 1 (cf)

Most of these records should probably be regarded as somewhat uncertain since it is doubtful to what extent *Turdus torquatus* and *T. merula* can be separated osteologically.

Turdus merula/torquatus

LP: UK 3, 10, 12, 28, 31, 46, 63

Turdus merula/viscivorus

LP: FR 84

Turdus hortulorum* Sclater, 1863*Grey-backed Thrush**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/26)–present

MP: CI 14

Turdus naumanni* Temminck, 1820*Dusky Thrush**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

?: JA 16

MP: CI 11, 14

Turdus ruficollis* Pallas, 1776*Dark-throated Thrush**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: CI 8, 14

LP: CI 7; RO 26 (cf)

Turdus pilaris* Linnaeus, 1758*Fieldfare**

Stratigraphic range: Middle Pleistocene (MNQ 22/23)–present

?: CZ 51?; FR 93; IR 1, 7, 10; IT 5, 87?; SK 9; UK 52

MP: BRD 14; CZ 23, 41 (cf); FR 54, 59, 67 (cf), 126, 147–148, 171, 197, 202 (cf); HU 48; IT 113; SP 9

LP: AU 18, 21 (cf); BE 3, 11–13, 15–16; BH 3 (cf); BRD 38, 51, 70, 73, 106, 114–115 (cf), 121, 127, 150; CH 16, 25, 27; CR 13; CZ 2, 6, 12, 16–17, 32, 34, 37, 41 (cf), 44, 49; FR 1, 18, 38, 42, 44, 48, 58, 69, 80, 83, 97–98, 107, 115, 125(cf), 140, 159, 172, 176?, 184, 219, 227, 231, 235, 240, 247, 256; HU 2, 20–21, 36, 37 (cf), 38, 41–42 (cf), 44; IR 10; IT 3, 38, 49, 53, 59, 61, 71, 97, 109, 112; PG 2; RM 3, 12–13, 16 (cf), 22–23, 30, 33; RO 16, 26; SK 2; SP 29, 34 (cf), 55?; UK 2, 12, 20, 22, 28–29, 47, 52, 55 (cf), 57, 63; UR 1, 24

Turdus pilaris/merula

LP: RM 32

Turdus pilaris/philomelos

LP: BRD 156

Turdus pilaris/viscivorus

MP: SP 10

LP: FR 133; GR 10; IR 8

Turdus philomelos* C. L. Brehm, 1831*Song Thrush**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: IR 1, 4, 6, 9–10; IT 9, 64, 79, 87; MA 4?; SK 9; UK 52

EP: AU 2 (cf); BU 6 (cf); RM 2 (cf)

MP: AU 7 (cf); HU 48; UK 68

LP: AU 10, 14, 21; BE 12, 16; BRD 8, 16, 38, 106, 119, 123; BU 1 (cf), 2; CH 22; CR 13; CZ 2, 6, 11–12, 17, 37, 48–49; FR 4, 80, 83, 106, 159; GE 8; HU 2, 16, 21, 38, 44; IR 1, 10; IS 11, 16–17; IT 3, 8, 38, 40, 47, 66, 106, 109, 112; PG 2; PO 21, 24, 32 (cf); RM 1, 6, 8, 18, 23, 27; RO 18 (cf), 25–26; SK 2; SP 4, 31, 37, 40, 54–55, 57, 59; UK 2, 10, 12, 14, 29, 31, 39, 43, 47, 52, 54, 57, 63; UR 1, 4, 9, 24–25, 34

Turdus cf *philomelos* has also been reported from the late Pliocene (MN 17) of Ukraine (Obitochnoe/Primorsk) (Dubrovo & Kapelist 1979).

Turdus philomelos/iliacus

?: FR 93

LP: FR 235

Turdus iliacus Linnaeus, 1766

Redwing

Stratigraphic range: Late Pliocene/Early Pleistocene (MN 18)–present

?: CZ 4; IR 1, 4, 6, 9–10; IT 78; SP 80

EP: FR 187 (cf); RM 2 (cf); SP 74

MP: AZ 2; FR 13, 37?, 54, 147–148, 157, 171, 197, 202 (cf), 211; IT 113, 118; SP 9; UK 32, 68; UR 15

LP: AU 18, 21, 25; BE 12, 16; BRD 16, 73, 127, 142; CH 16, 28?; CZ 2, 12; FR 4, 14–15, 18, 42, 44, 48, 80, 84 (cf), 87, 97, 99, 102, 109, 144, 150, 172, 206, 216, 231–232, 240, 251; GR 10; IR 1, 10; IS 11; IT 3, 47?, 55; PG 2?; PO 18; RO 26; SP 20, 46 (cf), 55?, 59–60; UK 2, 12, 14, 20–21, 29, 31, 39, 46–47, 52

Turdus iliacus/philomelos

LP: FR 235; HU 20; SP 22, 74 (cf)

Turdus viscivorus Linnaeus, 1758

Mistle Thrush

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

?: FR 93, 179; HU 69; IR 1, 6, 10; IT 23; SK 2; SP 80

EP: AU 2 (cf); FR 189 (cf), 204 (cf); RM 2 (cf, aff); SP 63 (cf)

MP: AU 7 (aff), 21; CZ 41 (cf); FR 59, 147–148, 157, 171, 197, 211, 216; HU 69; IT 50; RO 7; SP 10, 75

LP: AU 10, 13?, 14, 18; BE 12, 16; BRD 21, 27, 38, 40, 73, 106, 115 (cf), 119, 121, 136; CH 1, 3, 7; CR 2, 6, 13, 17, 19; CZ 2, 6, 37, 44, 48; FR 4, 7, 9, 12, 15, 33, 38, 42, 48, 50 (cf), 58, 68–69, 71, 74, 77, 80, 97–99, 102, 108, 112, 115, 127, 156, 162, 169, 174, 181, 198 (cf), 206, 216, 220 (cf), 227, 231–232?, 235–236, 240, 245; GR 9; HU 16, 20 (cf), 24, 36, 37 (cf), 38, 41, 44; IR 5, 10; IRQ 1; IT 3, 46–47, 53, 59, 61, 66, 73, 94, 97, 112; MO 1, 3; PO 13, 29, 32; RM 12–13, 19, 22–23, 25 (cf), 27, 33; RO 16, 25–26; SL 1 (cf); SP 2, 4, 7, 20, 22, 24 (cf), 26, 28, 33, 36, 37?, 46, 53, 59–60, 64, 68, 79, 83; UK 2, 12, 20, 31, 43, 47–48, 52, 63; UR 2

Turdus viscivorus/pilaris

LP: GR 10

Turdus viscivorus/torquatus

LP: CH 27

Turdus migratorius Linnaeus, 1766

American Robin

?: IT 23

LP: IT 3, 72

The records of this strictly Nearctic species are almost certainly due to misidentification. However, it seems clear that a thrush larger than any species now found in the region occurred in southern France–northern Italy during the Late Pleistocene. Apparently it has been identified either as *Turdus migratorius* or

Zoothera dauma (q. v.); the latter certainly seems more likely, but probably the identification should be regarded as tentative pending a more thorough study.

Turdus nov sp.

LP: PG 6

Turdus sp.

?: BRD 82–83, 104; CZ 4; FR 91, 92; IT 26, 65, 87; SP 80

EP: BRD 141; CR 12; IS 35

MP: BRD 9, 14; CI 14; CZ 41, 55; GE 9; GR 13; IS 34; IT 123; MA 4; PO 10; SP 10; TK 1 (cf)

LP: AU 6 (2 spp.), 16, 19, 25 (spp.); BE 7; BH 6; BRD 7–8, 16–17?, 21, 32, 45, 54, 59–60, 71, 100–101, 106, 129–130, 150; BU 5; CH 1, 7, 10, 16, 21–24; CI 20; CR 11; FR 38, 79–80, 84, 86, 135, 160, 215, 221, 226; GE 2, 5, 11; GR 6, 10, 20; HU 24, 36, 41–42, 52; IRQ 2?; IS 2, 11, 19; IT 1, 11, 14, 40, 42, 60, 69, 96; LI 2; MA 4; MO 1; PO 18, 31 (cf); RM 13; RO 25, 38; SP 17, 21–22, 27–28, 37, 41, 44, 46, 53, 61; UK 20, 59, 62; UR 25

+ *Turdicus tenuis* Kretzoi, 1961

Stratigraphic range: Early Pleistocene (MNQ 20)

EP: RM 2

Relegated to *aves incertae sedis* by Brodkorb (1978).

***Prinia gracilis* (Lichtenstein), 1823**

Graceful Prinia

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IS 11

***Prinia polychroa* (Temminck), 1828**

Brown Prinia

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: CI 8

***Locustella naevia* (Boddaert), 1783**

Common Grasshopper Warbler

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: CZ 12

***Acrocephalus paludicola* (Vieillot), 1817**

Aquatic Warbler

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: FR 144

***Acrocephalus schoenobaenus* (Linnaeus), 1758**

Sedge Warbler

Stratigraphic range: Late Pleistocene (MNQ 26)?–present

LP: IS 2 (cf); UK 2?

***Acrocephalus palustris* (Bechstein), 1798**

Marsh Warbler

Stratigraphic range: Late Pleistocene (MNQ 26)–present

EP: RM 2 (cf)

LP: FR 18, 69?

***Acrocephalus scirpaceus* (Hermann), 1804** **European Reed Warbler**
 Stratigraphic range: Late Pleistocene (MNQ 26)–present
 LP: SP 59

***Acrocephalus arundinaceus* (Linnaeus), 1758** **Great Reed Warbler**
 Stratigraphic range: Middle Pleistocene (MNQ 23)?–present
 EP: RM 2 (cf, aff)
 MP: FR 211?
 LP: AU 22; CI 10; FR 14, 235; RM 33

***Acrocephalus* sp.**
 EP: IS 35
 MP: CI 8; CZ 41
 LP: FR 235

***Hippolais icterina* (Vieillot), 1817** **Icterine Warbler**
 Stratigraphic range: Late Pleistocene (MNQ 26)–present
 LP: FR 69

***Hippolais* sp.**
 EP: RM 2

***Sylvia melanocephala* (J. F. Gmelin), 1789** **Sardinian Warbler**
 Stratigraphic range: Middle Pleistocene (MNQ 23)–present
 MP: FR 211
 LP: IS 11

***Sylvia hortensis* (J. F. Gmelin), 1789** **Orphean Warbler**
 Stratigraphic range: Late Pleistocene (MNQ 26)–present
 LP: FR 69, 97, 123?; IS 11

***Sylvia nisoria* (Bechstein), 1795** **Barred Warbler**
 Stratigraphic range: Middle Pleistocene (MNQ 23)–present
 MP: FR 157?, 211

***Sylvia curruca* (Linnaeus), 1758** **Lesser Whitethroat**
 Stratigraphic range: Late Pleistocene (MNQ 26)–present
 ? : SK 9
 LP: RO 25

***Sylvia communis* Latham, 1787** **Common Whitethroat**
 Stratigraphic range: Middle Pleistocene (MNQ 24)–present
 EP: RM 2 (cf)
 MP: FR 148, 171
 LP: FR 15?, 97

Sylvia borin* (Boddaert), 1783*Garden Warbler**

Stratigraphic range: Middle Pleistocene (MNQ 23)–present

MP: UK 60

LP: CR 13, 17, 19; IS 11

Sylvia atricapilla* (Linnaeus), 1758*Blackcap**

Stratigraphic range: Middle Pleistocene (MNQ 23)–present

EP: AU 2 (cf); SP 74 (cf)

MP: FR 171, 211

LP: CZ 8?; FR 44, 69, 74, 97, 102, 144, 235; IS 11; SP 54?; UK 2, 46, 52

***Sylvia* sp.**

?: SP 80

EP: IS 35

MP: FR 147; IS 34; IT 123

LP: BH 3; GR 20; IS 11, 19; UK 20

Phylloscopus bonelli* (Vieillot), 1819*Bonelli's Warbler**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: FR 69

Phylloscopus sibilatrix* (Bechstein), 1793*Wood Warbler**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IS 11

Phylloscopus sibilatrix/collybita

MP: IT 123

Phylloscopus collybita* (Vieillot), 1817*Chiffchaff**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: CZ 12; FR 74; IS 11

Phylloscopus collybita/trochilus

LP: FR 4; IS 2 (cf)

Phylloscopus trochilus* (Linnaeus), 1758*Willow Warbler**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

?: FR 93

LP: CH 22 (cf); CZ 12

***Phylloscopus* sp.**

MP: AU 7; IS 34

LP: CI 10; FR 235; IS 11

Regulus regulus* (Linnaeus), 1758*Goldcrest**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: CZ 48; IS 11; PO 17 (cf)

Regulus ignicapillus* (Temminck), 1820*Firecrest**

EP: SP 74 (cf)

***Regulus* sp.**

MP: AU 7

LP: CH 22; HU 42; IS 11

Muscicapa striata* (Pallas), 1764*Spotted Flycatcher**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

EP: SP 74 (cf)

MP: AU 7 (cf); IS 34

LP: BE 7 (cf); GR 10; IS 11

Ficedula albicollis* (Temminck), 1815*Collared Flycatcher**

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

MP: BRD 66 (cf); FR 59, 157

LP: FR 89; UR 25

Ficedula hypoleuca* (Pallas), 1764*European Pied Flycatcher**

Stratigraphic range: Middle Pleistocene (MNQ 23)–present

EP: FR 196 (cf)

MP: FR 211

LP: FR 144, 162, 235

Ficedula hypoleuca/albicollis

LP: AU 21

***Ficedula* sp.**

EP: FR 204

LP: SP 61

Panurus biarmicus* (Linnaeus), 1758*Bearded Reedling**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: BRD 146 ?

This record is based on eggshell remains and must be regarded as very uncertain.

Paradoxornis webbianus* (Gould), 1852*Vinous-throated Parrotbill**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: CI 8

Turdoides squamiceps* (Cretzschmar), 1827*Arabian Babbler**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: IS 34

Garrulax davidi* (Swinhoe), 1868*Père David's Laughingthrush**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: CI 11, 14

- Aegithalos caudatus* (Linnaeus), 1758** **Long-tailed Tit**
 Stratigraphic range: Middle Pleistocene (MNQ 24)–present
 ? : IT 55
 EP: RM 2 (cf); SP 74 (cf)
 MP: FR 148; 157 (cf)
 LP: IT 55?; UK 47, 52; PO 17 (cf); UR 2
- Parus palustris* Linnaeus, 1758** **Marsh Tit**
 Stratigraphic range: Middle/Late Pleistocene (MNQ 24/26)–present
 MP: AU 7 (cf); BRD 66 (cf); CI 14
 LP: AU 21; CR 13; HU 41
- Parus lugubris* Temminck, 1820** **Sombre Tit**
 EP: RM 2 (cf, aff)
- Parus montanus* Conrad, 1827** **Willow Tit**
 Stratigraphic range: Late Pleistocene (MNQ 26)–present
 LP: AU 21 (cf); CR 16; FR 97
- Parus cristatus* Linnaeus, 1758** **Crested Tit**
 Stratigraphic range: Middle Pleistocene (MNQ 23)–present
 EP: SP 74 (cf)
 MP: FR 211; SP 9
 LP: FR 48, 235; PO 32; UR 17
- Parus varius* Temminck & Schlegel, 1848** **Varied Tit**
 ? : JA 16
- Parus ater* Linnaeus, 1758** **Coal Tit**
 Stratigraphic range: Late Pleistocene (MNQ 26)–present
 EP: SP 74 (cf)
 MP: HU 55 (cf)
 LP: CH 22; CZ 16; FR 235; UK 12
- Parus caeruleus* Linnaeus, 1758** **Blue Tit**
 Stratigraphic range: Late Pleistocene (MNQ 26)–present
 ? : UK 8
 MP: CZ 41 (cf)
 LP: AU 3; BRD 119
- Parus major* Linnaeus, 1758** **Great Tit**
 Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present
 EP: RM 2 (cf); SP 74 (cf); UR 35 (cf)
 MP: AU 7 (cf); CI 8, 14
 LP: AU 10?; 21; BH 3; BRD 20, 126, 153; CH 22; CR 8, 13, 16, 19; CZ 44, 49;
 FR 15, 69, 95 (cf), 231; HU 41; IS 2 (cf), 11; RM 28, 33; SP 54, 68; UK 2, 12,
 20, 43, 47, 52; UR 2, 17–18, 24, 34

***Parus* sp.**

EP: IS 35

MP: CI 28; HU 58

LP: HU 13?; UK 20

Sitta cf carolinensis

LP: PO 16

Sitta europaea* Linnaeus, 1758*Eurasian Nuthatch**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

EP: AU 2 (cf)

MP: CZ 41 (cf); UK 68

LP: AU 21; BH 3; BU 2 (cf); CH 22; CR 12–13, 16; CZ 2, 41 (cf); FR 69, 87?, 231; PO 32; RM 15; UK 2, 12, 39, 43, 47, 52

***Sitta* sp.**

EP: AU 2

Tichodroma muraria* (Linnaeus), 1766*Wallcreeper**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IT 106; PO 13 (cf), 20 (cf)

Certhia familiaris* Linnaeus, 1758*Eurasian Treecreeper**

EP: RM 2 (cf)

***Certhia* sp.**

LP: BRD 114; FR 135

Remiz pendulinus* (Linnaeus), 1758*Eurasian Penduline Tit**

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

MP: FR 157

LP: IS 11

Nectarinia osea* (Bonaparte), 1856*Palestine Sunbird**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IS 11

Oriolus oriolus* (Linnaeus), 1758*Eurasian Golden Oriole**

Stratigraphic range: Late Pleistocene (MNQ 25)–present

LP: BH 6; BRD 121; CR 11, 13, 19; CZ 2; FR 84; HU 38, 44; IS 11, 16–17;

IT 46, 97

***Oriolus* sp.**

EP: IS 35

LP: IS 16–17

- Lanius cristatus* Linnaeus, 1758** **Brown Shrike**
 Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present
 MP: CI 8
 LP: CI 7, 10
- Lanius collurio* Linnaeus, 1758** **Red-backed Shrike**
 Stratigraphic range: Late Pleistocene (MNQ 26)–present
 EP: RM 2 (cf, aff)
 LP: AU 10, 21; BRD 21; BU 2; CR 12; CZ 12; FR 69; HU 44; MO 1; RM 12; UK 33?; UR 8, 17, 24
- Lanius minor* J. F. Gmelin, 1788** **Lesser Grey Shrike**
 Stratigraphic range: Early Pleistocene (MNQ 20)–present
 EP: GR 13; RM 2 (cf)
 LP: HU 38; RM 23; SP 22, 61
- Lanius minor/excubitor***
 LP: SP 59
- Lanius excubitor* Linnaeus, 1758** **Great Grey Shrike**
 Stratigraphic range: Early Pleistocene (MNQ 19)–present
 EP: IS 35
 MP: IS 34
 LP: AU 25; BRD 121; CH 7; CR 12–13, 19; FR 84, 198 (cf); IS 16–17, 23; PO 18; SP 22, 41, 61
- Lanius senator* Linnaeus, 1758** **Woodchat Shrike**
 Stratigraphic range: Middle Pleistocene (MNQ 21)–present
 MP: FR 148; IS 34; IT 123; SP 75
 LP: AU 10; FR 235; HU 38, 41; IS 11; SP 61
- Lanius nubicus* Lichtenstein, 1823** **Masked Shrike**
 Stratigraphic range: Middle Pleistocene (MNQ 24)–present
 MP: IS 34
 LP: IS 11
- Lanius* sp.**
 EP: IS 35
 MP: CI 11
 LP: AU 3; BH 3, 6; CH 1?; IS 2; SP 21
- Dicrurus macrocercus* (Vieillot), 1817** **Black Drongo**
 Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present
 MP: CI 8, 14
 LP: CI 7
- Garrulus glandarius* (Linnaeus), 1758** **Eurasian Jay**
 Stratigraphic range: Early Pleistocene (MNQ 20)–present
 ? : FR 93; IR 6, 9–10; IT 5; JA 16; UK 52

EP: AU 2 (cf); BRD 141 (aff); FR 204 (cf); RM 2

MP: BRD 14, 66; CZ 23, 41, 55; FR 59, 134, 147–148, 157, 197, 211; IS 34; IT 50; UK 68 (cf); UR 15, 24

LP: AU 3, 16, 21, 25; BE 11–12, 16; BH 3, 6; BRD 27, 38, 76, 106, 126; BU 2; CR 6, 12–13, 16, 18–19; CZ 1–2, 6, 11–12, 30, 37, 44, 46, 48; FR 3, 4, 11, 30, 38, 42–44, 48, 58, 69, 86, 89, 95, 106, 115, 144, 170, 229, 231, 235, 245, 251; GE 5, 11; GR 4, 6–7, 10–11, 20; HU 1, 18, 20?, 36–38, 41, 44; IR 10; IS 11, 16–18; IT 3, 8, 31, 36, 43, 47, 52, 55, 59, 61, 72, 97, 106, 112; KI 2; LI 2; LU 1; MO 1, 3; PO 11, 17, 24 (cf), 29; RM 23, 30; RO 3, 25; SP 2, 4, 7, 21, 34, 42, 54–55, 57, 59, 68, 83; SY 2; UK 12, 20, 22, 43, 52, 55 (cf), 63, 73?; UR 1, 4, 25, 27, 34

Garrulus glandarius cf ichnusae

LP: IT 1

Garrulus glandarius/Nucifraga caryocatactes

LP: CH 22

***Garrulus lidthi* Bonparte, 1851**

Lidth's Jay

LP: JA 9 (cf)

***Garrulus* sp.**

MP: BRD 144

***Perisoreus infaustus* (Linnaeus), 1758**

Siberian Jay

Stratigraphic range: Late Pleistocene (MNQ 26)?–present

LP: HU 2?

***Perisoreus* sp.**

MP: BRD 66?

***Urocissa erythrorhyncha* (Boddaert), 1783**

Blue Magpie

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: CI 8

LP: CI 7

***Cyanopica cyanus* (Pallas), 1776**

Azure-winged Magpie

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/26)–present

MP: CI 14

LP: CI 7

The complete absence of either fossil or subfossil records from the Pyrenean Peninsula is striking and may indicate that this species was introduced to the western Palearctic by man in quite recent times.

***Pica pica* (Linnaeus), 1758**

Common Magpie

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: FR 92, 103, 179; IR 1, 6, 9; IT 9, 23, 26, 48, 55, 87; SP 80

EP: HU 65 (cf); IS 35; MR 2 (cf); SP 74 (cf)

MP: AZ 2; BRD 14, 86; CI 14; CR 14; CZ 41; FR 59, 147–148, 152?, 171, 211; IT 123; SP 10; UR 15, 24
 LP: AU 3, 16, 18, 21; BE 12, 15–16; BH 3, 6; BRD 21, 27, 34, 38, 44–45, 70, 119, 127; CH 15–16, 25; CR 12–13, 15–16, 19; CZ 6, 34, 37; FR 3–4, 15, 33, 38, 42, 44, 48, 69, 84, 107–108, 115, 131, 133, 144, 160, 165, 169, 174, 215, 217, 235–236, 240; GE 5, 20; HU 2, 7, 12, 20–21, 36–38, 41, 44, 47; IR 5; IS 11, 16–17, 23; IT 3, 38, 46, 52, 55, 61, 66, 72–73, 97, 106, 109; LI 2; MO 1; PG 2?, 4; PO 13, 32; RM 4, 33; RO 3, 7, 14–15, 25–26; SP 2, 4, 7, 21, 24, 28, 42, 46, 55, 79, 90–91; SR 1–2; UK 2, 43, 47, 52, 57, 59, 65 (cf); UR 1, 2, 19–20, 24–25, 27, 30

Records of this species from Mallorca (SP 24, 80) may refer to an extinct, as yet undescribed, corvid (Alcover et al. 1992; J A Alcover *pers. com.*)

(+) *Pica pica major* Janossy, 1972

Stratigraphic range: Middle Pleistocene (MNQ 21)–Middle Pleistocene (MNQ 23)

EP: HU 32 (aff), 66 (aff)

MP: AU 7; CZ 41; FR 157, 197

Pica pica/Nucifraga caryocatactes

EP: SP 74

***Pica* sp.**

EP: BU 6

***Podoces hendersoni* Hume, 1871**

Henderson's Ground Jay

Stratigraphic range: Middle Pleistocene–present

MP: CI 28

cf *Podoces* sp.

LP: BRD 5

It has been hypothesized that *Podoces* should occur in western Palearctic steppe-tundra avifaunas (e. g., Moreau 1954) but the doubtful record from Bau-mannshöhle (BRD 5) (Blasius 1901) is the only indication of this.

***Nucifraga caryocatactes* (Linnaeus), 1758**

Spotted Nutcracker

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: IT 55; SK 2; SP 80

EP: SP 74 (cf)

MP: BRD 14, 57; CZ 23, 41; FR 134 (cf), 157, 171; IT 113; UR 15

LP: AU 3, 10, 16, 18, 25; BRD 21, 38, 119; BU 4; CH 23, 28; CR 13, 19; CZ 2, 6, 30; FR 42, 44, 69, 110, 116, 162, 165, 174, 235, 240; HU 20–21, 37–38, 41, 44; IT 3, 40, 55, 97, 120; PO 32; RM 4, 15, 28; RO 26; SK 3, 42, 74

A record of this species from Mallorca (SP 80) may refer to an extinct, as yet undescribed, corvid (Alcover et al. 1992; Alcover *pers. com.*).

***Nucifraga caryocatactes macrorhynchos* (C. L. Brehm), 1823**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: HU 2, 36

***Nucifraga* sp.**

LP: BRD 99; HU 37

Pyrrhcorax graculus* (Linnaeus), 1766*Alpine Chough**

Stratigraphic range: Early Pleistocene (MN 18)–present

?: BRD 83; FR 103, 126, 153, 208, 218; IT 7, 23, 26, 55

EP: BU 6; RM 2; SK 5 (aff); SP 89 (cf); UR 12

MP: AU 7 (cf); AZ 1; BRD 66; CZ 41 (aff), 55; FR 44, 113, 126, 134, 147, 152; GE 9; HU 55 (cf); IT 50, 123; SP 10; UR 9, 24

LP: AU 3, 10, 13, 16, 19, 22–25; BRD 16, 38, 106, 119, 121, 136–137; BU 1–5; CH 4, 6–7, 10, 14–15, 19, 22–23, 26, 28–29; CR 12–13, 15, 19; CZ 6; FR 1, 3, 7–8, 11–12, 14–16, 24, 26, 28–29, 30 (cf), 32–34, 36, 38–41, 43–44, 47–48, 50, 53, 58, 68–71, 74, 76–77, 79–80, 86, 89–90, 95, 97–99, 105–108, 110, 114–115, 118, 122–125, 131–133, 135, 138, 140–144, 146, 148, 155–156, 162, 165–166, 169–170, 172–174, 181–184, 188, 191, 193–194, 198, 214–216, 219–220, 223, 227, 229, 231–232, 235–236, 240, 245–247, 250–251, 256; GE 5, 8–9, 11, 18, 20; GR 3, 5, 10, 21; HU 7, 18, 20–21, 24, 36–38, 41, 44, 47; IS 16–17; IT 3, 14, 24 (cf), 31, 34–35, 38, 40–41, 46–47, 49, 55–56, 59, 66, 69, 71–74, 86, 94, 96–97, 104, 106, 109, 112, 116, 120; MN 1–2; PO 13; RM 4, 11–14, 16, 18–19, 28, 30, 33; RO 12, 25, 27, 40, 43; SK 2; SP 1–2, 7–8, 11, 14–15, 21–23, 28–29, 31, 33–34, 36–37, 41–42, 44–47, 49–50, 53–54, 59, 61, 64–65, 70–72, 81, 83, 90–91; UR 1–2, 6, 8–9, 24

While separating the two *Pyrrhcorax* species is generally no problem, the identity of some older records may be doubtful due to nomenclatural problems because in the past both species have been referred to as *Pyrrhcorax alpinus*, *Pyrrhcorax graculus* or *Pyrrhcorax pyrrhcorax*! All records of *Pyrrhcorax pyrrhcorax* mentioned by Lambrecht (1933) are actually *Pyrrhcorax graculus* and *vice versa*. For more details on this nomenclatural confusion see Jánossy (1954).

(+) *Pyrrhcorax graculus vetus* Kretzoi, 1962

Stratigraphic range: Early Pleistocene (MNQ 20)–Middle Pleistocene (MNQ 24)

EP: RM 2

MP: FR 13, 30 (cf), 59, 67 (cf), 134 (cf), 147, 148 (cf), 157, 171 (cf), 202 (cf), 211? (cf); GR 13; RO 38

Pyrrhcorax graculus/Corvus monedula

LP: HU 2

Pyrrhcorax pyrrhcorax* (Linnaeus), 1758*Red-billed Chough**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: FR 30, 93?, 195, 243; IT 9, 55, 107; PG 1

EP: SP 74 (cf), 89 (cf); UR 12 (cf)

- MP: AZ 1; CI 8, 14; CR 19; CZ 23; FR 30 (cf), 54, 211; GE 9, 11, 19; HU 69; SP 10; UR 9, 24
- LP: AU 9, 12, 16, 22, 25; BH 1, 6; BU 1; CH 5, 26; CI 7, 10; CR 11, 13, 16 (cf), 19; FR 1, 3–4, 8, 11, 25, 29, 30 (cf), 32, 38–39, 44, 48, 71, 86, 95, 97, 106, 108, 115, 122, 131, 141, 144, 148, 151, 162, 165, 170, 173, 184, 215, 220, 227, 229, 235, 245, 256; GE 5–6, 9–11, 20; GR 10, 20 (cf), 21; HU 36; IS 11; IT 1, 3, 14, 38, 41, 46–47, 49, 53, 59, 61–62, 67, 73, 86, 106, 109, 112, 116; LU 1; PG 2, 4; RM 13; RO 3, 23, 25, 27, 40; SP 2, 4, 7–8, 17–18, 20, 22–23, 28, 31, 33–34, 37–38, 40–42, 44–45, 47, 50, 53, 61, 64, 70–72, 76, 81, 83, 90; SR 1; UK 12?, 29, 38, 51; UR 1, 8–9, 11, 24–25, 34; UZ 1

While separating the two *Pyrrhonorax* species is generally no problem, the identity of some older records may be doubtful due to nomenclatural problems because in the past both species have been referred to as *Pyrrhonorax alpinus*, *Pyrrhonorax graculus* or *Pyrrhonorax pyrrhonorax*! All records of *Pyrrhonorax pyrrhonorax* mentioned by Lambrecht (1933) are actually *Pyrrhonorax graculus* and *vice versa*. For more details on this nomenclatural confusion see Jánossy (1954).

(+) *Pyrrhonorax pyrrhonorax primigenius* Milne-Edwards, 1875

Stratigraphic range: Middle Pleistocene (MNQ 21)–Late Pleistocene (MNQ 26)

?: FR 30, 254; IT 48

MP: FR 59, 147, 148, 171 (cf); RO 38

LP: FR 17, 38, 69, 116, 123, 133, 148, 231, 240; IT 52, 55, 72

***Pyrrhonorax* sp.**

?: CI 35

EP: BU 6

MP: HU 10, 58; TK 1

LP: AU 26, 27?; FR 80; GE 18; HU 43; IT 36; SP 7, 21, 28, 38, 41, 45, 55, 58; UR 1, 24–25

Pyrrhonorax* sp. / *Corvus monedula

LP: SP 87

***Corvus monedula* Linnaeus, 1758**

Western Jackdaw

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: AU 4?; FR 93; IR 6–7, 9; IT 7; PG 1?; UK 52

EP: BU 6 (cf); CI 15; CZ 41; FR 204 (cf); HU 32 (aff), 66 (aff); IS 35; RM 2 (cf, aff); UR 12?

MP: BRD 14, 66; CI 8, 14; CR 9; CZ 23, 41; FR 30, 147–148, 171, 197, 211; HU 58; IS 34; SP 9–10, 54; UR 15, 24

LP: AU 3, 6, 10, 14, 16, 21; BE 7; BH 1, 3, 6; BRD 7, 16, 21, 28 (cf), 37, 45, 53, 63, 70, 73, 100–101, 106–107, 121, 127, 139, 153, 156; BU 1–2; CH 1?, 4, 28; CI 7; CR 11–13, 16, 19; CZ 2, 6, 9, 11, 16, 26, 30, 37, 41 (cf), 43, 48–49; FR 12, 41–42, 44, 80, 95, 140?, 148–149, 162–163, 165–166, 169, 174, 182, 213, 217, 221, 227, 237, 240, 245, 256; GR 5–7, 10–11, 16, 20; HU 1–2, 9, 18, 20, 36, 38, 57; IS 11, 15–18, 23; IT 3, 19, 35, 38, 40, 42, 46, 49, 53, 59,

61, 67, 89 (cf), 97, 109, 112; MN 1; MO 1, 3–4; PG 2, 4; PO 4, 13, 32; RM 3–4, 12–13, 16, 22, 25, 33; RO 2 (cf); SP 2, 7, 20, 24, 28, 31–32, 38, 48, 51, 55, 61, 64, 77, 83; SR 1–2; UK 2, 12–13, 20, 22, 29, 39, 43, 47–48, 52, 54–55, 57, 59, 63; UR 1–2, 4, 6, 19–20, 24, 34

Corvus monedula/Pica pica

LP: BRD 34

Corvus monedula/Pyrhocorax graculus

LP: BRD 16

***Corvus frugilegus* Linnaeus, 1758**

Rook

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: GR 12?; IR 10; IT 9

EP: CI 15; RM 2

MP: AZ 2; BRD 66 (cf); GR 2; IS 34

LP: BE 15; BH 1; BRD 27, 127; CR 11, 19; FR 38, 102, 143, 156 (cf), 229; HU 36, 38; IS 15; IT 3, 14, 40, 46–47, 52, 72, 106, 109, 112; NE 1; RM 4, 33; RO 16, 25; SR 1; UK 2, 52; UR 19, 24; UZ 1

Corvus corone and *Corvus frugilegus* are quite difficult to distinguish osteologically and many of the records above should probably be regarded as belonging to *Corvus corone/frugilegus*.

***Corvus corone* Linnaeus, 1758**

Carrian Crow

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: BRD 35; FR 153, 179; IT 9, 26, 64; MA 4 (cf), 5 (cf)

EP: IS 35; RM 2 (cf)

MP: AZ 2; BRD 14, 144 (cf); CI 14; CR 9, 14; CZ 41; FR 59, 147, 148?, 164, 197, 211; GR 2; IS 34; SP 75

LP: AU 18, 21; BE 13; BH 1, 3; BRD 27, 106, 115 (cf), 131; CH 13, 16, 27; CI 7; CR 8, 11–13, 19; CZ 6, 16, 30, 37; FR 11, 22, 32–33, 41, 44, 50 (cf), 84, 108, 115, 133, 144, 160, 162, 165, 173–174, 191, 220 (cf), 236, 250, 256; GE 17; HU 20, 44; IS 9–11, 16–18, 23; IT 3, 14, 18, 40, 45–47, 49, 55, 59, 61–62, 73, 86, 106, 109; JO 9; PG 2 (cf); RM 4, 12, 16, 25, 33 (cf); RO 12, 15, 26; SP 2, 4, 7, 21–22, 28, 33, 41–42, 57, 61 (cf), 64, 79, 90; SR 1; SY 2; UK 3, 19, 52; UR 8, 24, 34

Corvus corone and *Corvus frugilegus* are quite difficult to distinguish osteologically and many of the records above should probably be regarded as belonging to *Corvus corone/frugilegus*.

Corvus corone/betfianus

EP: RM 2

Corvus corone/frugilegus

?: FR 88; IR 1, 4, 6, 9; IT 37

LP: GR 10; IR 1, 5; SP 7; UK 31, 39, 54, 64

Corvus macrorhynchos* Wagler, 1827*Large-billed Crow**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

?: JA 3, 4, 16

LP: CI 10; JA 9, 12

Corvus torquatus* Lesson, 1831*Collared Crow**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)?–present

MP: CI 8?, 11?

Corvus albus* Müller, 1776*Pied Crow**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: EG 12

LP: EG 5

Corvus ruficollis* Lesson, 1831*Brown-necked Raven**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/25)–present

MP: AZ 2

LP: IS 23; JO 9

Corvus corax* Linnaeus, 1758*Common Raven**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: AR 2; CZ 51; FR 179; GE 1; IR 1, 4, 6, 9; IT 9, 26, 55; MA 5; UK 52

EP: GR 13; IS 35; RM 2

MP: AZ 2; BRD 66; CR 9–10, 14, 19; CZ 23, 41 (cf); FR 44, 126, 147, 148 (cf); HU 55 (cf); UR 15

LP: AU 16, 21; BE 6, 7, 11; BH 6; BRD 2, 3, 16, 38, 50, 58, 73, 76, 98, 103, 106, 110, 121, 138, 140, 148, 155; BU 1; CH 10, 15–16, 22, 27–28; CR 12–13, 15–16; CZ 2, 6, 9, 11, 16, 28–29, 32, 35, 37, 52; FR 2, 4, 8–9, 11–13, 23, 29, 39, 44, 48, 50, 68–69, 76, 80, 89, 95, 101, 106, 108, 110, 112, 114–116, 129, 131, 133, 135, 140, 144, 150, 154, 165, 169–170, 172, 174, 182–184, 188, 198, 213, 216, 219, 227, 231, 232, 235, 240, 245, 250; GE 8, 12; GR 6; HU 1–2, 7, 21, 36–38, 41, 44, 54; IR 11; IS 16–17; IT 3, 13–14, 38, 40, 42, 46–47, 55, 59, 62, 72, 97, 109, 112; MN 1; MO 1; NO 1; PO 13, 21, 32; RM 4, 12, 14, 16, 20; RO 2, 5, 12, 16–17, 41; SK 2; SP 2, 4, 7, 17, 31, 41–42, 55, 61, 64–65, 76, 78–79, 81, 83; UK 2?, 14, 18, 20, 31, 38–39, 52, 54, 57, 59, 63–64; UR 13, 19

+ *Corvus antecorax* Mourer-Chauviré, 1975

Stratigraphic range: Pliocene (MN 17 (Saint Vallier))–Middle Pleistocene (MNQ 24)

EP: FR 189 (cf); 196 (cf)

MP: FR 54 (cf); 59 (cf), 148, 171, 197, 211, 216 (cf); SP 10

The relationship of this smaller species to *Corvus corax* is unclear. The Palearctic records are all from the southwest Palearctic where birds seemingly transitional between *corax* and *antecorax* occur in Latest Pleistocene/Early Holocene context in Cueva de Nerja near Malaga (F. Hernández-Carrasquilla 1995 and pers. com.). This might suggest that *antecorax* was a southwestern European form

(like e. g. *Sturnus unicolor*) which has now become extinct or has been genetically swamped by *C. corax*. It should be noted that the ravens from the Iberian peninsula (ssp. *hispanus*) are significantly smaller than the nominate subspecies. On the other hand, Brodkorb (1978) synonymized *Corvus neomexicanus* Magish & Harris, 1977 and tentatively also *Corvus shufeldti* Sharpe, 1909 from New Mexico and Oregon, respectively, with *antecorax*. This would suggest a much wider distribution of *antecorax* and perhaps an ancestor/descendant relationship between *antecorax* and *corax*.

***Corvus rhipidurus* Hartert, 1918**

Fan-tailed Raven

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IS 23

+ *Corvus betfianus* Kretzoi, 1961

Stratigraphic range: Early Pleistocene (MNQ 20)

EP: RM 2

Tentatively synonymized with *Corvus pliocaenus* or considered as *aves incertae sedis* by Brodkorb (1978).

+ *Corvus hungaricus* Lambrecht, 1916

Stratigraphic range: Late Pliocene (MN 17 (Saint Vallier))–Early Pleistocene (MNQ 19/20)

EP: FR 238; HU 32

+ *Corvus pliocaenus* (Portis), 1889

Stratigraphic range: Late Pliocene/Early Pleistocene (MN 18)–Middle Pleistocene (MNQ 22)

EP: FR 204; GR 18; IT 22, 114; SP 74

MP: CZ 41; FR 59, 164; GR 19

Brodkorb (1978) and Mlíkovský (in press) synonymized *Corvus praecorax* Depéret, 1892 from the Early Pliocene (Perpignan MN 15) with *C. pliocaenus*, but Mourer-Chauviré (1975a) considered the differences between these forms sufficient to retain them as separate species.

+ *Corvus pliocaenus jánossyi* Mourer-Chauviré, 1975

Stratigraphic range: Middle Pleistocene (MNQ 23)–Middle Pleistocene (MNQ 24)

EP: BRD 141 (aff)

MP: FR 157, 171, 197

Also reported from Tarkö (HU 55, MNQ 22) (Jánossy 1979) but later emended as *Corvus cf. corax* (Jánossy 1986).

+ *Corvus praecorax* Depéret, 1892

Stratigraphic range: Early Pliocene (MN 15 (Perpignan))–Early Pleistocene (MN 18)?

EP: BU 6 (cf)

See note under *C. pliocaenus* above.

+ *Corvus moravicus* Mlíkovský, 1996

Stratigraphic range: Middle Pleistocene (MNQ 21).

MP: CZ 41

A small form intermediate in size between *Corvus corone* and *C. monedula* (Mlíkovský in press).

+ *Corvus fangshannus* Hou, 1993

Stratigraphic range: Late Pleistocene (MNQ 26).

LP: CI 10

***Corvus* sp.**

?: BRD 82–83; JA 11; SK 2

EP: BU 6

MP: IT 50

LP: BH 4; BRD 6, 19, 62, 71, 100–101, 107, 124, 128–130; CH 7; CI 20; EG 5; HU 22, 52; IT 3, 6, 40, 45–46; MO 1, 4; RM 13; RO 10?; SP 21, 55, 69; SR 1; UZ 1

+ *Corvidae* n. sp.

MP: IT 123

This may be the same underscribed species which occurs on the Balearics (SP 24, 80). See notes under *Pica pica* and *Nucifraga caryocatactes* above.

***Onychognathus tristramii* (Sclater), 1858**

Tristram's Starling

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: IS 34

LP: IS 16–17, 23

***Sturnus sturninus* (Pallas), 1776**

Purple-backed Starling

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/26)–present

MP: CI 14

LP: CI 7

***Sturnus philippensis* (Forster), 1781**

Chestnut-cheeked Starling

?: JA 16

***Sturnus vulgaris* Linnaeus 1758,**

Common Starling

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: CR 4; IR 1, 4, 6, 9; IT 48; UK 52

EP: IS 35; RM 2 (cf)

MP: CR 14; FR 147, 197; CZ 33 (cf), 41 (cf); IS 20, 34; MA 4; UK 68 (cf)

LP: AU 21; BH 3 (cf); BRD 6, 135; CH 7, 14, 25; CR 12–13, 19; FR 45, 58, 74, 79, 87, 133, 140, 148, 162, 165, 166, 184, 198, 240, 256; GR 9; HU 16, 22, 24, 38, 41; IR 1; IRQ 2; IS 2 (cf), 11, 16–17, 19, 23; IT 3, 14, 38, 40, 46, 49,

61, 106; LI 2; PO 21, 32; RM 4, 16, 19; RO 25; SL 1 (cf); SP 2, 53–55, 59, 84; SR 1; UK 3, 12, 33, 43–44, 52, 63; UR 1, 17, 24

Sturnus vulgaris/unicolor

LP: SP 64

***Sturnus unicolor* Temminck, 1820**

Spotless Starling

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: FR 141; SP 33 (cf)

***Sturnus roseus* (Linnaeus), 1758**

Rose-colored Starling

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: FR 42, 84, 102; HU 38; IT 3, 46, 51

***Sturnus cineraceus* Temminck, 1835**

White-cheeked Starling

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

?: JA 16

MP: CI 8, 11

LP: JA 9

***Sturnus* sp.**

?: FR 93

EP: IS 35

MP: IS 34; IT 123; SP 10; TK 1

LP: BRD 11; FR 84, 107, 159, 215; GR 10; HU 20; IS 11, 17; IT 42, SP 41, 91; UK 64

***Passer domesticus* (Linnaeus), 1758**

House Sparrow

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

?: IR 1, 10; UK 52

MP: FR 147, 157, 171

LP: CZ 8?, 49; FR 11 (aff), 69, 87 (cf), 169, 231, 235; HU 41?; IR 7?; IS 2 (cf), 11, 19 (cf), 23, 29?; SP 54, 59, 61; UK 2, 12, 33?, 39, 43, 52; UR 2, 17, 24

Some records may be from *Passer hispaniolensis*. This is particularly true of the Middle/Late Pleistocene records from southwestern Europe.

+*Passer predomesticus* Tchernov, 1962

Stratigraphic range: Middle Pleistocene (MNQ 24)

MP: IS 34

***Passer hispaniolensis* (Temminck), 1820**

Spanish Sparrow

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: IS 34

LP: IS 11

[*Passer italiae* (Vieillot), 1817]

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/26)–present

?: IT 9

MP: IT 50

LP: IT 3, 60, 69, 96, 109

It is very doubtful whether this stabilized hybrid form can be separated from *Passer domesticus* or *P. hispaniolensis*.

***Passer rutilans* (Temminck), 1835**

Russet Sparrow

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: CI 8

LP: CI 7

***Passer moabiticus* Tristram, 1864**

Dead Sea Sparrow

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: IS 34

***Passer montanus* (Linnaeus), 1758**

Eurasian Tree Sparrow

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: CI 8, 11, 14; FR 148

LP: BU 2?; FR 11 (aff), 148, 169; IS 2 (cf), 19 (cf); IT 3; UK 52; UR 1–2, 24

***Passer* sp.**

?: IT 87

MP: UR 21

LP: BH 6; BRD 153; IS 11; IT 12; SP 33, 53

***Petronia petronia* (Linnaeus), 1766**

Rock Sparrow

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

EP: FR 196 (cf)

MP: FR 54, 147–148, 157, 171; IS 34; IT 123

LP: FR 44, 69, 77, 162, 172, 235–236, 245; IRQ 2 (cf); IS 11, 16–17, 19; IT 3; SP 20, 61; UR 2, 24

+ *Petronia brevirostris* Tchernov, 1968

EP: IS 35

***Petronia* sp.**

LP: IS 19

***Montifringilla nivalis* (Linnaeus), 1766**

White-winged Snowfinch

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

?: IT 55

MP: FR 147–148, 157?, 171

LP: AU 18, 21, 22; BRD 16, 38, 119, 121, 142; CH 14, 26, 28?; FR 4, 7, 8, 25–26, 32, 38, 44, 48, 58, 69, 71, 116, 144, 169, 183, 198, 215, 219?, 235, 240, 246, 250; IT 3, 97; PO 32; SP 22, 61; UR 24

cf *Amandava amandava*

LP: MA 4

Fringilla coelebs* Linnaeus, 1758,*Common Chaffinch**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: IT 9, 37 (cf), 55, 65

EP: IS 35; RM 2 (cf); SP 74 (cf); UR 35 (cf)

MP: CR 14; FR 147–148, 157, 202 (cf); IS 34; SP 10

LP: AU 21; BRD 38, 121; BU 2; CH 7, 25; CR 12–13, 16; CZ 2, 16, 30; FR 4, 15, 38, 41–42, 44, 48, 69, 71, 97–98, 115, 178, 235, 256; IR 7, 10; IS 2, 11, 17, 19; IT 3, 47, 55, 59–60, 84, 109; PO 18; RM 8, 15, 21, 28; SP 16, 53 (cf), 64, 81; UK 17 (cf), 33?, 43, 52; UR 17

Fringilla coelebs maderensis* Sharpe, 1888*Common Chaffinch**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: PG 6

Fringilla coelebs/montifringilla

MP: IT 123

LP: CH 22; GR 10; UK 12

Fringilla montifringilla* Linnaeus, 1758*Brambling**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: CI 8, 14

LP: AU 18; BRD 8, 52, 121, 150, 156; CH 10; CI 7; CZ 16; FR 227; HU 42 (cf), 44; IT 3, 106; SP 55; UK 52

***Fringilla* sp.**

?: BRD 83; IT 65

LP: BH 3; BRD 4, 45, 70, 124, 128 (cf), 130, 133; CH 7, 27; FR 71; IS 19, 23 (cf); SP 22, 46, 61; UK 20, 59

Serinus pusillus* (Pallas), 1811*Red-fronted Serin**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IS 11

Serinus serinus* (Linnaeus), 1766*European Serin**

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

?: IT 37 (cf)

EP: AU 2 (cf)

MP: FR 148?, 157; UK 60

LP: IS 11

Serinus citrinella* (Pallas), 1764*Citrl finch**

Stratigraphic range: Middle Pleistocene (MNQ 23)–present

MP: FR 171?, 211

LP: FR 69, 166?, 231; PO 32

***Serinus* sp.**

MP: IT 123

LP: FR 47; IS 2?, 23

Carduelis chloris* (Linnaeus), 1758*European Greenfinch**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: IR 7, 10

EP: FR 196 (cf); IS 35 (cf)

MP: FR 157, 211; IS 34; IT 118, 123; MA 4

LP: AU 10; BH 6; BRD 142; CR 13; FR 9, 76, 95, 108, 166?; GR 10; IS 2 (cf), 11, 17; IT 3, 40, 55, 97, 112; PO 18, 21 (cf); RM 23; RO 25; SP 17, 54, 59, 61; UK 12?, 14, 43, 47, 52; UR 1, 17, 19, 24

Carduelis carduelis* (Linnaeus), 1758*European Goldfinch**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

EP: SP 74 (cf)

MP: CZ 41 (aff); FR 147; IS 34

LP: BRD 121; CR 16 (cf); FR 42, 69?, 84, 169; IS 2 (cf), 11, 17, 28; IT 3; PO 17 (cf); RM 8, 12–13 (cf); RO 25; UK 12; UR 1–2, 17, 24

Carduelis spinus* (Linnaeus), 1758*Eurasian Siskin**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

EP: FR 196 (cf)

MP: IS 34

LP: CZ 2, 48; IS 11; RO 25

Carduelis cannabina* (Linnaeus), 1758*Common Linnet**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

?: FR 93; IR 10; IT 23; SP 80; UK 52

MP: FR 171; UR 15

LP: AU 14; BRD 138; CZ 49; FR 15, 42, 84; IR 10; IS 11; IT 3, 97; PO 17; RM 33 (aff); SP 34, 61; UK 2, 12, 52

Carduelis flavirostris* (Linnaeus), 1758*Twite**

No fossil record. The distribution of this species in the steppes and mountains from Anatolia to Transbaikal, with an isolated population on coastal heaths in northwestern Europe, however, makes it virtually certain that it was widely distributed on the Late Pleistocene steppe-tundra. The absence of fossil records may be due to fossil Twites being misidentified as Common Linnets because comparative material of *flavirostris* in reference collections is probably scarce.

Carduelis flammea* (Linnaeus), 1758*Common Redpoll**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

?: IT 55

MP: FR 147, 171

LP: AU 10, 16; FR 69?–70? (cf), 74, 148 (cf), 172; IT 3, 55; SP 16; UK 43

There is no fossil record of the Arctic Redpoll, *Carduelis hornemanni* (Holboell), 1843. Comparative material is probably scarce, and it seems quite doubtful whether it could be separated osteologically from *flammea* in any case.

***Carduelis* sp.**

EP: FR 196; IS 35; RM 2

MP: IT 123

LP: BE 7; CZ 2, 48; IS 11, 19 (cf); RO 25; IS 34

Loxia leucoptera* J. F. Gmelin, 1789*Two-barred Crossbill**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IT 3

Loxia curvirostra* Linnaeus, 1758*Common Crossbill**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

?: IT 23

MP: CZ 41 (cf)

LP: BRD 70, 73; BU 1, 2; CR 13; CZ 2, 6, 16; FR 84, 116; HU 16, 20, 38, 41, 44;

IS 11; IT 3, 40, 47, 97; RO 7; SP 22; UK 20, 43, 52; UR 24

For some notes on the history and fossil record of this and other *Loxia* species see Tyrberg (1991).

Loxia pytyopsittacus* Borkhausen, 1793*Parrot Crossbill**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: FR 147

LP: CZ 49; FR 236; IT 3, 97

***Loxia* sp.**

MP: CI 8; IT 103

LP: AU 10?; CH 22

Carpodacus erythrinus* (Pallas), 1770*Common Rosefinch**

Stratigraphic range: Middle Pleistocene (MNQ 22)–present

?: JA 16

MP: FR 147, 157

LP: CI 7, 10; FR 240; RO 25

Carpodacus roseus* (Pallas), 1776*Pallas's Rosefinch**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: CI 8

Carpodacus rubicilla* (Güldenstädt), 1775*Great Rosefinch**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: RO 25

Pinicola enucleator* (Linnaeus), 1758*Pine Grosbeak**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

EP: AU 2 (cf)

MP: FR 147

LP: AU 10, 25; FR 24 (cf), 210; HU 20?, 38; IT 3; SP 8; UK 43, 63

***Pinicola* sp.**

MP: AU 7, HU 65 (aff)

***Uragus sibiricus* (Pallas), 1773**

?: JA 16

Long-tailed Rosefinch***Pyrrhula pyrrhula* (Linnaeus), 1758****Eurasian Bullfinch**

Stratigraphic range: Middle Pleistocene (MNQ 21)–present

?: IR 6, 7, 9; IT 23, 79

MP: CR 14; CZ 41 (aff); FR 147, 211; HU 58; IT 123

LP: AU 10; BRD 38, 63, 142; BU 2, 4; CH 7, 10, 22; CR 8, 12–13, 16; CZ 48; FR 1, 41, 84, 97, 144, 221, 227?, 231; GR 10; HU 2, 16, 21?, 38, 41, 44; IR 10; IT 3, 71, 97; PO 24; RM 15, 23; SP 22; UK 2, 20, 22, 52

***Pyrrhula* sp.**

LP: BRD 21

Eophona personata* (Temminck & Schlegel), 1850*Japanese Grosbeak**

?: JA 16

Coccothraustes coccothraustes* (Linnaeus), 1758*Hawfinch**

Stratigraphic range: Early Pleistocene (MNQ 19)–present

?: IT 23, 37, 55, 65; SK 9; SP 80; UK 52

EP: IS 35; RM 2 (cf); SP 74 (cf)

MP: BRD 14, 57; CI 8, 14; CZ 41; FR 59, 134, 147, 148, 211; HU 48; IS 34; IT 123; MA 4; SP 9

LP: AU 6, 10, 18, 21; BH 6; BRD 70, 73, 121, 126; CH 22; CI 10; CR 8, 12–13, 16–17; FR 15, 26, 42, 44, 48, 58, 69?, 71, 97, 106, 109, 144, 162, 188, 206, 216, 227, 231, 235–237, 251; GR 10; HU 16, 20?; IR 9?; IS 11, 17, 23; IT 3, 8, 47, 55, 72, 84, 106, 115; MO 1; PG 6; PO 4, 13; RM 12, 23, 25; SP 41, 55, 61, 90; UK 2, 12, 18, 20, 31, 43?, 47, 52, 63; UR 1, 2, 8, 23, 24

***Coccothraustes* sp.**

EP: BU 6

LP: BRD 74

Calcarius lapponicus* (Linnaeus), 1758*Lapland Longspur**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: AU 21; UK 12

The rarity of this species in the Pleistocene is striking. Both records are from sites with a known admixture of Holocene and Late Pleistocene material and the possibility must be entertained that this species, the only one extending into the Palearctic of an otherwise strictly Nearctic genus, may only have colonized the Palearctic during the Holocene.

Plectrophenax nivalis* (Linnaeus), 1758*Snow Bunting**

Stratigraphic range: Middle Pleistocene (MNQ 24)–present

MP: FR 147, 157 (cf), 171; UR 15, 24

LP: AU 10; BRD 16, 73; CH 15; CZ 6; FR 84, 97, 99, 169, 231?, 236, 256; HU 41, 44, 47 (cf); IT 3; SP 55; UK 2, 12, 29, 33, 43, 52, 57; UR 24

***Emberiza spodocephala* Pallas, 1776**

Black-faced Bunting

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: CI 8,14

***Emberiza leucocephalos* J. F. Gmelin, 1771**

Pine Bunting

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: CI 8

LP: CI 10

***Emberiza citrinella* Linnaeus, 1758**

Yellowhammer

Stratigraphic range: Middle Pleistocene (MNQ 23)–present

MP: CZ 42 (cf); FR 148, 157 (cf), 171, 211?; HU 58 (aff); SP 10

LP: AU 18, 21; BRD 38, 73, 138 (cf); CH 22; CR 12–13, 16, 19; CZ 16, 49; FR 74, 77, 162, 172, 235; IR 9, IT 3, 71, 106; RO 17, 25; SP 2, 4, 54, 59; UK 2, 12; UR 2, 17

***Emberiza cirlus* Linnaeus, 1766**

Cirl Bunting

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: CR 16; IT 3; SP 59

***Emberiza cia* Linnaeus, 1766**

Rock Bunting

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: CI 8

LP: IT 3; SP 22; UR 2

Emberiza cia/hortulana

LP: SP 22

***Emberiza cioides* Brandt, 1843**

Meadow Bunting

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/26)–present

?: JA 16

MP: CI 14

LP: CI 10

***Emberiza hortulana* Linnaeus, 1758**

Ortolan Bunting

Stratigraphic range: Middle Pleistocene (MNQ 23)–present

?: IT 3?

MP: FR 147, 211?

LP: FR 58, 144, 156, 231; UR 24

***Emberiza caesia* Cretzschmar, 1826**

Cretzschmar's Bunting

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: IS 11, 19

***Emberiza chrysophrys* Pallas, 1776** **Yellow-browed Bunting**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: CI 8

LP: CI 7

***Emberiza rustica* Pallas, 1776** **Rustic Bunting**

Stratigraphic range: Middle/Late Pleistocene (MNQ 24/26)–present

MP: CI 14

***Emberiza pusilla* Pallas, 1776** **Little Bunting**

Stratigraphic range: Middle Pleistocene (MNQ 21/24)–present

MP: CI 8, 14

LP: CI 7

***Emberiza schoeniclus* (Linnaeus), 1758** **Common Reed Bunting**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

LP: AU 10; CZ 2, 6, 12; HU 41; IT 3; PO 21 (cf); UK 12, 52

***Emberiza melanocephala* Scopoli, 1769** **Black-headed Bunting**

Stratigraphic range: Late Pleistocene (MNQ 26)–present

MP: SP 75 (cf)

LP: SP 2

***Emberiza* sp.**

EP: BU 6; HU 66; IS 35

MP: IT 123

GLOSSARY

14C: Carbon 14 date.

AAR: Amino Acid Racemization date.

Acheulean (Acheuleen): The most important Early Palaeolithic Culture. Dated ca. 1,500–200 KA BP and found throughout Africa and Eurasia, except for the northernmost parts, the Far East and Southeast Asia. It is both the most widespread and long-lasting culture in human history. Hominids associated with the Acheulean usually belong to *Homo erectus*.

Afian: An Epipalaeolithic culture in the Nile valley of Egypt, dated ca. 13,000–14,000 BP.

Ahmarian: The earliest Upper Palaeolithic culture in the Levant, dated ca. 40,000–27,000 BP.

Ahrensburgian (-ien): A Late Upper Palaeolithic culture found on the north European plain from Belgium to Poland and extending north to Germany and southernmost Sweden. Dates mainly to Dryas 3 (ca. 11,000–10,000 BP)

Akchagyl: A stage in the evolution of the Caspian Sea. Falls mostly in the Pliocene, but latest Akchagyl may extend into Early Pleistocene.

Ålesund Interstadial: A Mid-Weichselian interstadial in Norway ca. 30,000 BP. Probably equivalent to the Denekamp interstadial.

Alleröd: Late Glacial Interstadial between the Dryas 2 and Dryas 3 stadials. Dated approximately 12,000–11,000 BP.

Alluvium: Obsolete term for postglacial (Holocene) deposits.

Arcy: A minor interstadial ca 30,000 BP attested at a number of French cave sites. Probably broadly equivalent to Denekamp q. v.

Aurignacian (-ien): The most important Early Upper Palaeolithic culture in Europe. Very widely distributed from the Atlantic to the Black Sea and from the Mediterranean to Northern England and the edge of the North European plain. A (possibly somewhat older) variant is also known from the Levant. In most areas dated approximately 35,000–28,000 BP, though some sites in SE Europe (e. g., Istalloskö) are older.

- Azilian (-en):** A transitional Palaeolithic/Mesolithic culture of southern France and northern Spain. Usually a successor to the Magdalenian culture, but in part coeval with it. Dated to ca. 12,000–9,000 BP.
- Bachokirian:** A very early Upper Palaeolithic culture as yet known only from Bacho Kiro cave in Bulgaria. Dated to ca. 40 KA BP.
- Ballanan:** An Epipalaeolithic culture in the Nile valley of Upper Egypt, dated ca. 14,000 BP.
- Beremendian:** A biostratigraphic substage in the Pliocene of the Pannonian basin approximately equivalent to MN 16 + 17.
- Betfia phase/substage:** A biostratigraphic substage in the Early Pleistocene of the Pannonian basin approximately equivalent to MNQ 19.
- Biharian (-ium):** A Biostratigraphic stage originally defined in the Pannonian basin but occasionally used elsewhere. Consists of the four substages Betfia, Templomhegy, Tarkö and Verteszöllös and comprises most of the Early Pleistocene and the early part of the Middle Pleistocene.
- Bölling (=Böll.):** A Late Glacial interstadial dating to ca. 12,700–12,000 BP. At least in some areas summer temperatures may have been close to modern values during parts of this interval.
- BP:** Before Present (actually counted from 1950 AD).
- Brommian:** Late Upper Palaeolithic culture dating to Alleröd (ca. 12,000–11,000 BP) and occurring in Denmark, southernmost Sweden and northern Germany and Poland.
- Brörup:** An early Weichselian/Würmian interstadial dating to ca. 93–105 KA BP. Equivalent with Isotope Stage 5c. Sometimes known as Brörup/Amersfoort since it is divided into two by a short cold phase in some sequences.
- Bühlstadium:** A stage named for the Bühl end moraines in the northern Alps. Possibly equivalent to Dryas I.
- Castellum subphase:** A biostratigraphic subphase in the late Middle Pleistocene of the Pannonian basin approximately equivalent to MNQ 23 + part of MNQ 24.
- Charentian (-ien):** Name for the combined Quina and Ferrassie facies (q. v.) of the Mousterian.
- Chatelperronian (-ien):** An early Upper Palaeolithic culture occurring in central and southern France and northern Spain. In some respects intermediate between Middle and Upper Palaeolithic and may have developed from MAT Mousterian. Very few reliable dates are associated with the Chatelperronian, but it presumably dates to ca. 35,000 BP. Probably associated with the last neandertalers.

- Clactonian (-ien):** An early Palaeolithic culture characterized by an absence of hand axes and a variety of unstandardized tools based on flakes. At least in the strict sense Clactonian is confined to Western Europe and the later part of the Middle Pleistocene, though somewhat similar industries occur elsewhere.
- Cold Mousterian:** A term used, particularly in Germany ("kaltes Mousterien"), to characterize Mousterian sites associated with a cold, subarctic fauna. Such sites probably mostly date to the IS 4 stadial (ca. 60,000–75,000 BP).
- Creswellian:** A Late Upper Palaeolithic culture dating ca. 14,000(?)–10,000 BP. Occurs mostly in England and Wales but also found in northern France, Belgium, Netherlands and NW Germany. Probably related to the Hamburgian.
- Cromerian s. l.:** "The Cromerian complex," an interval with three glacial (Glacial A-C) and four interglacial (Interglacial I-IV) stages during the earliest Middle Pleistocene. Probably equivalent to IS 13–21 (470–780 KA BP). The term has been used particularly in the Netherlands and East Anglia.
- Cromerian s. s.:** An early Middle Pleistocene interglacial defined at a type section in East Anglia. Probably equivalent to IS 13 or (more unlikely) 15.
- Csarnotian:** A biostratigraphic substage in the Pliocene of the Pannonian basin approximately equivalent to MN 15.
- Denekamp:** A mid-Weichselian interstadial dated to ca. 30 KA BP. Often "lumped" with the slightly older (ca. 37–39 KA BP) Hengelo interstadial as the Hengelo-Denekamp interstadial.
- Denticulate(d) Mousterian:** One of the five "classical" Mousterian facies defined by Francois Bordes, characterized by a high proportion of denticulated tools. For further details see Mousterian (typical).
- Devensian (=Dev.):** The local name for the last (Weichselian/Würmian) glaciation in Great Britain.
- Dryas 1 (=Dr 1):** The stadial preceding the Bölling interstadial, dating to ca. 13,000–14,000 BP.
- Dryas 2 (=Dr 2):** A short stadial dated to ca. 12,000 BP and separating the Bölling and Alleröd interstadials. This cold phase is missing in many sequences, and it was certainly brief, on the order of few centuries or less.
- Dryas 3 (=Dr 3):** The final cold stadial of the last (Weichselian/Würmian) glaciation. Dated to ca. 10,100–10,900 BP. Left extensive end moraines in Scandinavia. Equivalent with the Loch Lomond Readvance in Scotland.
- Eem:** The last interglacial period ca. 117–127 KA BP, equivalent to IS 5e. Climate during this interglacial seems to have been unusually warm, significantly warmer than during the present (Flandrian) interglacial. Equivalent

to the Ipswichian in England, Mikulino in Russia and Sangamonian in North America.

Eem (s. l.): The term “Eem” as sometimes used for the whole complex of interstadials and interglacial ca. 75–127 KA (IS 5a-e).

Elevtheroupolis interstadial: The equivalent of the Odderade (IS 5a) interstadial in the sequence from Tenaghi Philippon in Macedonia which is often used as a standard sequence for the whole southern Balkan.

Elster: The antepenultimate glaciation in the “classical” northern European stratigraphic scheme. In principle it should be equivalent to IS 8, but the term has been applied to deposits from several glacial stages from the mid/late Middle Pleistocene. Approximately equivalent to “Mindel” in the Alpine sequence.

EMP: Early Middle Pleistocene.

EP: Early Pleistocene, an interval comprising the period from 1,64 to 0,73 MA BP. Approximately equivalent to MNQ 19+20.

EP/PI(i): Early Pleistocene/Pliocene

Epigravettian (-ien): An Upper Palaeolithic culture which replaced the Aurignacian in Italy and parts of Balkan. A very long-lived culture lasting from ca. 25,000 BP to the end of the Pleistocene (in some areas at least).

Epipalaeolithic: A somewhat vague term with different meanings in different areas. Used as a label for cultures transitional between the Palaeolithic and the Mesolithic. In Europe Epipalaeolithic cultures usually span the Pleistocene/Holocene border while in the Near East they are older, ca. 19,000–10,000 BP.

ESR: Electron Spin Resonance dating.

EUP: Early Upper Paleolithic. The part of the Upper Palaeolithic before the Late Weichselian Glacial maximum, i. e. approximately 35,000–20,000 BP.

Federmesser: A Late Upper Palaeolithic culture in NW Germany, the Netherlands and Belgium. Dated to Alleröd and early Dryas 3 ca. 11,800–10,800 BP.

Ferdynandovian interglacial: A Middle Pleistocene interglacial in Poland. Correlation with other sites uncertain, but perhaps equivalent to IS 9 or 11.

Ferrassie: One of the five “classical” Mousterian facies defined by Francois Bordes. For further details see Mousterian (typical). At least in Périgord this facies seems to be confined to the early part of the last glaciation.

Frühsolutreen: Literally “Early Solutrean.” This term was in the past often applied in central European sources to the Szeletian and similar cultures because of the superficial similarity between their Blattspitzen (leaf-points)

and the characteristic Solutrean laurel leaf-points. The Blattspitzen cultures are however much older than the Solutrean, probably mostly falling within the interval 35,000–50,000 BP.

Frühardenoisien: Literally "Early Tardenoisian." This term has been used in the past in Central Europe for a variety of Epipalaeolithic and early Mesolithic cultures.

Geometric Kebaran: An Epipalaeolithic culture in the Levant dating to ca. 14,000–12,000 BP.

Glacial: A cold climatic phase characterized by extensive continental icecaps in northern Eurasia and North America.

Gravettian (-ien): An Early Upper Palaeolithic culture which replaced the Aurignacian in Central and Eastern Europe. Dated approximately 28,000–20,000 BP. Related cultures in France and Italy are known as Upper Perigordian and Epigravettian respectively.

Günz: The first glaciation according to the classical Penck/Brückner scheme. Like most terms in the Alpine sequence, it has been misused until it is nearly meaningless, though it is normally applied to some part of the Early Pleistocene and/or the earliest part of the Middle Pleistocene.

Günz-Mindel (G/M): The first interglacial according to the classical Penck/Brückner scheme. Like many other terms in the Alpine sequence, it must now be regarded as obsolete.

Halfan: An Upper Paleolithic culture in the Nile Valley of Upper Egypt and Nubia dated to ca. 17,000–20,000 BP.

Hamburgian: Late Upper Palaeolithic culture dating largely to the Bölling interstadial, and found on the North European plain from the Netherlands to Poland and also extending to Denmark and southernmost Sweden. Probably related to the Creswellian and possibly derived from the Magdalenien.

Harifian: An epipalaeolithic culture related to the Natufian (q. v.). The Harifian was restricted to the Negev and northern Sinai and dates to Dryas 3 (ca. 10,800–10,100 BP).

Heraklitsa interstadial: Probably the equivalent of the Moershoofd interstadial (early IS 3 ca. 43–50 KA BP) in the sequence from Tenaghi Philippon in Macedonia which is often used as a standard sequence for the whole southern Balkan.

Hochaurignacien: German for High Aurignacian (= Aurignacian *sensu stricto*).

Hochglazial: German for High Glacial (= Pleniglacial).

Hol(o): Abbreviation for Holocene (0–10,000 BP)

Holocene: The present (Flandrian) interglacial 0–10,000 BP

- Holstein:** An interglacial usually identified as the penultimate interglacial (IS 7 ca. 195–250 KA BP), but deposits traditionally termed “Holsteinian” probably date from several late Middle Pleistocene interglacials. The Holsteinian *sensu stricto* seems to have been a rather long and cool interglacial with a markedly colder middle phase.
- Hoxnian:** An interglacial in the English sequence traditionally correlated with Holstein. However, it seems more likely that the Hoxnian should be correlated with IS 9 (ca. 300–350 KA BP) rather than with IS 7.
- Inter Riss II/III:** In the “traditional” French stratigraphic scheme the penultimate (Rissian) glaciation is divided into three subphases, Riss I-III, separated by interstadials. However, it seems quite uncertain whether these warm intervals were actually of interstadial or interglacial rank. Inter Riss II/III is possibly equivalent with the interval between the Drenthe and Warthe stadials in northern Europe.
- Inter Würm:** Interstadial within the Würmian glacial cycle.
- Interglacial:** A warm phase with climatic conditions roughly comparable to the present time. To qualify as a true interglacial it is usually considered that a warm phase should be long and warm enough for broad-leaved forest to grow in central Europe and taiga in Scandinavia.
- Interpléniglaciaire:** A milder phase during the Middle Weichselian, approximately equivalent to IS 3.
- Interstade:** French for interstadial.
- Interstadial:** A warm phase of less amplitude than an interglacial. During an interstadial the continental ice-sheets in Eurasia and North America never disappeared completely and forest growth was typically much more restricted than during an interglacial. Some “interstadials” were quite minor climatic ameliorations during a glacial cycle (e. g. the Laugerie interstadial ca. 20,000 BP).
- Interwürm:** An interstadial within the Würmian glacial cycle. The term is mostly used in France.
- Ipswichian:** The last interglacial according to English terminology. Equivalent with Eem and Riss/Würm on the European mainland. Some deposits traditionally regarded as Ipswichian may however date to an older interglacial.
- Ipswichian s. l.:** The term “Ipswichian” is sometimes used for the whole complex of interstadials and interglacial ca. 75–127 KA (IS 5a-e).
- Ipswichian s. s.:** The last interglacial period ca. 117–127 KA BP, equivalent to IS 5e (Eem).

- IS 2:** Isotope Stage 2. The culmination of the last (Weichselian/Würmian) glacial cycle ca. 12,000–24,000 BP. Includes the glacial culmination ca. 18,000–20,000 BP.
- IS 3:** Isotope Stage 3. The slightly milder middle part of the last (Weichselian/Würmian) glacial cycle ca. 25,000–60,000 BP.
- IS 4:** Isotope Stage 4. The first major cold phase of the last (Weichselian/Würmian) glacial cycle ca. 60–75 KA BP. During this interval the Scandinavian icecap expanded as far as the lower Vistula Valley and eastern Denmark.
- IS 5a:** Isotope Stage 5a. A quite mild interstadial ca. 75–85 KA BP. Equivalent with Odderade (NW Europe), Tärendö (northern Sweden), St Germain II (Vosges mountains)
- IS 5b:** Isotope Stage 5b. The second cold stadial after the Eemian ca. 85–93 KA BP. Equivalent to Melisey II (Vosges mountains) and Rederstall (NW Europe).
- IS 5c:** Isotope Stage 5c. A quite mild interstadial ca. 93–105 KA BP. Equivalent to Brörup (NW Europe), Peräpohjola (Finland) and St Germain I (Vosges mountains)
- IS 5d:** Isotope Stage 5d. The first cold stadial after the Eemian ca. 105–117 KA BP. Equivalent to Melisey I (Vosges mountains) and Herning (Denmark).
- IS 5e:** The last interglacial period ca. 117–127 KA BP, equivalent to the Eemian. Climate during this interglacial seems to have been unusually warm, significantly warmer than during the present (Flandrian) interglacial.
- IS 6:** The penultimate glaciation ca. 127–195 KA BP, equivalent to Riss and Saale/Warthe.
- IS 7:** The penultimate interglacial, ca. 195–250 KA BP. Usually identified with the Holstein interglacial.
- Istalosköian substage:** A Late Pleistocene biostratigraphic substage in the Pannonian basin, approximately equivalent, at least, to IS 3. Named after Istaloskö cave (site HU 20).
- Jerzmanowician (-ien):** One of several “Blattspitzen” cultures which evolved near the end of the Middle Palaeolithic in various parts of central Europe. The Jerzmanowician is found mainly in southern Poland and is dated very approximately 35,000–50,000 BP. The eponymous site Jerzmanowice is found in the site list under the name Nietoperzowa cave (PO 17).
- Jungbiharium:** Late Biharian q. v.
- Jungdiluviale:** Approximately equivalent to Late Glacial.
- Jüngerer Löss:** “Younger Loess”, a term usually applied to loess deposited during the Late Weichselian Glacial Maximum.

Jungpaläolithikum: Equivalent to Upper Palaeolithica.

K-Ar: Acronym for Potassium-Argon dating.

KA: Kilannum (a thousand years)

kaltes Mousterien: “Cold Mousterian”, a term used, particularly in Germany, to characterize Mousterian sites associated with a cold, subarctic fauna. Such sites probably date mostly to the IS 4 stadial (ca. 60–75 KA BP).

Kansan: An early glaciation in North America, traditionally equivalent to “Günz”, but correlation with the European sequence quite uncertain.

Kargino/Karginsk: The Mid-Weichselian interstadial complex (IS 3) according to Siberian terminology.

Kataglacial: The later part of a glaciation with ameliorating climate. Derived from greek *kata* “down.”

Kebaran: An Epipalaeolithic culture in the Levant. Dated to ca. 19,000–14,000 BP.

Krinides I and II interstadials: At least the approximate equivalent of the Denekamp interstadial (IS 3 ca. 30 KA BP) in the sequence from Tenaghi Philippon in Macedonia, which is often used as a standard sequence for the whole southern Balkans.

L. Pl: Late Pliocene, ca. 1,6–X MA BP.

Laacher-See layer: A volcanic ash layer deposited over large parts of Central Europe by the eruption which created the Laacher See caldera in Eifel. Dated to the end of the Alleröd interstadial ca. 11,000 BP.

Lascaux interstadial: An interstadial dated to ca. 15–16 KA BP. This was a fairly distinct mild interval found in many European stratigraphic profiles.

Late Glacial: A traditional term for the period 13,000–10,000 BP, comprising the Bölling interstadial, the Dryas 2 stadial, the Alleröd interstadial and the Dryas 3 stadial.

Late MP: Late Middle Pleistocene:

Laugerie: A minor interstadial dated to ca. 20 KA BP. Possibly equivalent to the interval between the Brandenburg and the Pomeranian advances of the Northern European Ice Sheet. This quite cool interstadial seems to be indistinguishable in most stratigraphic sequences. Named for site FR 183/185.

LG: Late Glacial. The interval from the end of the Dryas 1 stadial to the end of the Dryas 3 stadial, approximately 13,000–10,000 BP.

LG/Hol: Late Glacial/Holocene.

LMP: Late Middle Pleistocene:

Loch Lomond Readvance: The local Scottish term for the Dryas 3 stadial q. v.

Lower Pleniglacial (IS 4): The early cold phase of the last (Weichselian/Würmian) glacial cycle ca. 60 000–75 000 BP.

LP: Late Pleistocene, Isotope Stages 2 through 5e, 10–127 KA BP.

LP/Hol.: Late Pleistocene/Holocene.

LP-Holocene: Late Pleistocene-Holocene.

LP-MP: Late Pleistocene-Middle Pleistocene.

LPI: Late Pliocene, ca. 1,6–X MA BP.

LUP: Late Upper Palaeolithic. The part of the Upper Palaeolithic after the Late Weichselian glacial maximum ca. 20,000 BP. In the Near East the term is often used for a somewhat earlier interval perhaps from ca. 25,000 BP.

M. Pal.: Middle Palaeolithic.

MA: Megannum, a million years.

MA BP: Million years before present.

Magdalenian: A Late Upper Palaeolithic culture originating in southern France and northern Spain which later expanded to northern France and large parts of Central Europe east to Moravia and southern Poland. In southern France and northern Spain the oldest Magdalenian sites date back to at least ca. 17,000 BP. In Central Europe only the later part of the Magdalenian sequence, ca. 14,000–10,000 BP is found. The Magdalenian is traditionally subdivided into six phases: Magdalenian I through VI. Magdalenian proper does not occur north of Belgium and Central Germany but the Hamburgian (q. v.) of the North European plain is usually regarded as related to and perhaps derived from the Magdalenian.

Magdalenien moyen: Middle Magdalenian.

Magdalenien: See Magdalenian.

Magdalenien ancien: Early Magdalenian.

Magdalenien final: Latest Magdalenian.

Magdalenien sup(erieur): Upper Magdalenian

Maisierian: An Early Upper Palaeolithic culture probably dating ca. 28,000 BP. Largely confined to a few sites in Belgium, but may also occur in south-eastern England.

MAT: Mousterian of Acheulean Tradition. A facies of the Mousterian which probably mostly dates to the latest part of the Middle Palaeolithic, perhaps ca. 35,000–50,000 BP.

- Mesolithic:** “Middle Stone Age”, the postglacial (Holocene) hunting/gathering stone-age. Ended with the introduction of farming. In some areas (e. g., Australia) lasting until subrecent times.
- Micoquian:** A late “final Acheulean” hand ax culture. Dated to late Riss (IS 6), the Eem interglacial and early Würm. Found mainly in Central Europe.
- Mid-Weichselian:** Approximately the equivalent of Isotope Stage 3 (ca. 25–65 KA BP).
- Mid Würm(-ian):** Approximately the equivalent of Isotope Stage 3 (ca. 25–65 KA BP).
- Middle Devensian:** Approximately the equivalent of Isotope Stage 3 (ca. 25–65 KA BP).
- Middle Pleis.:** Middle Pleistocene, ca. 127–710 KA BP.
- Middle Villafranchian:** see Villafranchian.
- Mindel:** The antepenultimate glaciation in the “classical” Alpine stratigraphic scheme. In theory should be equivalent to IS 8, but the term has been applied to deposits from several glacial stages from the mid/late Middle Pleistocene. Approximately equivalent to “Elster” in the North European sequence and, loosely, with MNQ 22. Mindel I-II has been used to distinguish two separate cold phases but these cannot be identified with particular isotope stages at this time.
- Mindel/Riss:** The antepenultimate (second) interglacial in the Penck/Brückner scheme, but like most terms in this sequence it has been misused almost to meaninglessness. If the term retains any meaning all it is something like “the mid Middle Pleistocene.” In older sources sometimes called “the Great Interglacial” since it was, falsely, thought to have been much longer than other interlacials.
- Mittel-Würm:** Approximately the equivalent of Isotope Stage 3 (ca. 25–65 KA BP).
- Mittelpaläolithikum:** German for Middle Palaeolithic q. v.
- Mittelwürminterstadial:** Mid-würmian interstadial, i. e. one of the mild intervals during IS 3 (ca. 25–65 KA BP)
- MN 15:** Neogene Mammal Zone 15, the earliest Pliocene mammal zone, ca. 3.5–5 MA BP.
- MN 16:** Neogene Mammal Zone 16, “Mid” Pliocene ca. 3 MA BP.
- MN 17:** Neogene Mammal Zone 17, Late Pliocene ca. 2–2.5 MA BP.
- MN 18:** Neogene Mammal Zone 18, Latest Pliocene/Earliest Pleistocene ca. 1.5–2 MA BP. Often amalgamated with MN 17.
- MNQ 19–26:** Quarternary Mammal Zones. For details see Chart 1, p. 609.

Moershoofd interstadial: An interstadial during the mid-Weichselian (IS 3) dated to ca. 43–50 KA BP.

Mosbachian: A biostratigraphic term used in Central Europe. Approximately equivalent to the Cromerian *sensu lato*.

Mousterian (-ien): The most important Middle Palaeolithic culture in Europe. The vast majority of mousterian sites date to the Late Pleistocene ca. 115,000–35,000 BP, but some may date back to the penultimate glaciation (IS 6). In some marginal areas (e.g., southern Spain and Portugal) the Mousterian may have lasted until ca. 30,000 BP or even somewhat later. This culture is apparently invariably linked to the neandertalers in Europe. In the Middle East it seems, however, to be associated with both neandertalers and humans of modern aspect.

Mousterien (MAT): Mousterian of Acheulean Tradition. A facies of the Mousterian which probably mostly dates to the latest part of the Middle Palaeolithic, perhaps ca. 35,000–50,000 BP. Also see Mousterian (typical).

Mousterien (typical): One of the five “classical” Mousterian facies defined by Francois Bordes, the others being Denticulate Mousterian, Mousterian of Acheulean tradition, La Ferrassie Mousterian and Quina Mousterian. The character of these five facies has been much disputed. To at least a considerable extent they occur more or less simultaneously and in the same areas. Bordes considered them to be cultural traditions of different ethnic groups among the neandertalers while other prehistorians regard them as toolkits used for different activities. However at least one (Mousterian of Acheulean tradition) seems to occur mostly toward the end of the Middle Paleolithic, and La Ferrassie and Quina Mousterian seem to date mainly to the early part of the last glaciation.

Mousterien ancien: French for Early Mousterian.

Mousterien of Acheulean tradition: A facies of the Mousterian which probably mostly dates to the later part of the Middle Palaeolithic, perhaps ca. 35,000–50,000 BP. Also see Mousterian (typical).

MP: Middle Pleistocene, ca. 127–730 KA BP.

MTA: The French abbreviation for Mousterian of Acheulean tradition (MAT), q. v.

Mushabian: An Epipalaeolithic culture in the southern Levant (Sinai-Negev) dated to ca. 14,500–13,000 BP.

Natufian: The dominant Epipalaeolithic culture in the Levant, dated approximately to 12,000–10,000 BP. Probably derived from the Kebaran/Geometric Kebaran culture. Evolved into the earliest neolithic culture (PPNA) ca. 10,000–10,500 BP. The Natufian culture played a crucial role in the transition from mobile hunting/gathering to sedentariness and food-production.

- Neolithic:** The younger stone age, characterized by food-production through agriculture and usually some degree of sedentariness. Use of pottery is also often, but not always, a feature of neolithic cultures. The oldest neolithic culture in the Near East, Pre-Pottery Neolithic A (PPNA) falls at least partly within the latest part of the Pleistocene (ca. 10,000–10,500 BP).
- Nomentana II:** A late Middle Pleistocene glacial stage in the Italian sequence equivalent to Riss/Saale.
- Norwich crag:** Part of the classical East Anglian Pliocene-Pleistocene sequence. The deposits traditionally termed Norwich crag probably range from the Ludhamian to the Bramertonian in age.
- Oldenburgian:** The biostratigraphic stage in the Pannonian basin after the Biharian. Consists of three substages Uppony, Castellum and Sólymar and comprises the later part of the Middle Pleistocene (part of MNQ 22 and MNQ 23 + 24).
- Pastonian:** An early Middle Pleistocene interglacial in the East Anglian sequence, probably equivalent to IS 15.
- Paudorf:** An obsolete term for a mid-Weichselian interstadial, equivalent to Denekamp q. v.
- PB:** Preboreal, the oldest subdivision (pollen zone) of the Holocene ca. 10,000–9,500 BP.
- Perig. a F. R.:** Short for Perigordien a Font-Robert
- Perigordien:** An Early Upper Palaeolithic culture found particularly in Central France. At least partly contemporary with the Aurignacian. The Chatelperronian (q. v.) is sometimes regarded as the earliest stage of the Perigordien. The later stages are often known as the Gravettian. Dated ca. 30,000–20,000 BP (if the Chatelperronian is excluded). A large number of subdivisions of the Perigordien are recognized by French prehistorians including Perigordien a elements tronqués, Perigordien a Font-Robert, Perigordien a gravettes and Perigordien a Noailles
- Perigordien ancien:** Another name for the Chatelperronian q. v.
- Pilisszantoian substage:** A Late Pleistocene biostratigraphic substage in the Pannonian basin at least approximately equivalent to IS 2. Named after site HU 38.
- PI/EP boundary:** Pliocene/Early Pleistocene boundary, c 1.64 MA BP.
- Pleist./Hol.:** Pleistocene/Holocene
- Pléniglaciaire A:** An early Würmian cold phase, probably IS 4.
- Pleniglacial:** “Fully glacial”, the coldest part of a glacial cycle. During the Weichselian/Würmian two pleniglacial stages are usually recognized comprising the coldest parts of IS 4 (ca. 70 KA BP) and IS 2 (ca. 20 KA BP)

Pli: Pliocene, ca. 1.64–5.2 MA BP.

Pli/EP: Pliocene/Early Pleistocene

Plio-Pleis: Pliocene-Pleistocene

Pod Hradem Interstadial: A Mid-Weichselian interstadial in Central Europe, probably broadly equivalent to the Hengelo-Denekamp interstadial in NW Europe. Named for site CZ 30.

Post-tirreniano: Italian for Post-Tyrrhenian q. v.

Post-Tyrrhenian: Younger than the Tyrrhenian transgression which is normally treated as equivalent to the Eemian (IS 5e), i. e. post-IS 5e.

PPNA: Pre-Pottery Neolithic A, the earliest neolithic culture in the Levant dated to ca. 10,000–10,500 BP.

PPNB: Pre-Pottery Neolithic B, replaced PPNA from ca. 9,500–10,000 BP.

Pre-Brörup Stadial: The stadial before the Brörup interstadial, equivalent to IS 5d (Herning). Dated to 105–117 KA BP.

Pre-Ludhamian: The cold interval before the Ludhamian in the East Anglian sequence. Probably equivalent to the Praetiglian in the Netherlands, i. e. ca. 2.1–2.3 MA BP.

Pre-Pottery Neolithic A: The earliest neolithic culture in the Levant dated to ca. 10,000–10,500 BP.

Pre-Pottery Neolithic B: Replaced Pre-Pottery Neolithic A from ca. 9,500–10,000 BP.

Prebor(eal): The oldest subdivision (pollen zone) of the Holocene, ca. 10,000–9,500 BP.

Protomagdalenian: An Upper Palaeolithic culture dating ca. 20,000 BP and probably transitional between the Perigordian and the Magdalenian. Only known from a few sites in SW France.

Protosolutrean: A term with two different meanings. In France used for an early/incipient stage of the Solutrean (q. v.), in Central Europe an obsolete term for the Szeletian (q. v.).

Qadan: An Upper Palaeolithic culture in the Nile valley of Egypt, dated ca. 11,000–14,000 BP.

Quina Mousterian (-ien): One of the five “classical” Mousterian facies defined by Francois Bordes. For further details see Mousterian (typical).

R/W: Riss/Würm, the latest interglacial according to the Penck/Brückner scheme. Equivalent to Eem (IS 5e).

Riss: The penultimate glaciation according to the Penck/Brückner scheme. Equivalent to Saale (IS 6) ca. 127–195 KA BP. Riss I-III (1–3) have been

used to designate cold phases (stadials) within the Rissian, particularly in France, but it is possible that at least in some sequences these cold phases are actually separate glaciations (IS 6, 8, 10 ?).

Riss moyen: French for “Middle Riss”. Might mean either the midpart of IS 6 or an earlier cold phase (IS 8?).

Riss Spätglazial: Riss Late Glacial, the last part of IS 6 ca. 130–140 KA BP.

Riss/Würm interglacial (R/W): The latest interglacial according to the Penck/Brückner scheme. Equivalent to Eem (IS 5).

Romanellian: A Late Upper Palaeolithic culture in southern Italy named after Grotta Romanelli (site IT 40).

s. l.: Short for *sensu lato*, “loosely defined.”

s. s.: Short for *sensu stricto*, “strictly defined.”

Sartan: The later part (post-Karginsk interstadial) of the latest glaciation in the Siberian sequence. Equivalent to IS 2.

Sebekian: An Epipalaeolithic culture in the Nile valley of Egypt, dated ca. 14,000–15,000 BP.

Sebilian (-ien): An Upper Palaeolithic culture in the Nile valley of Egypt, dated ca. 12,000–15,000 BP.

Silsilian: An Epipalaeolithic culture in the Nile valley of Egypt, dated ca. 14,000–16,000 BP.

Solutr. sup.: Upper Solutrean.

Solutrean (-éen): A Late Upper Palaeolithic culture restricted to southern France and northern Spain and spanning only a millenium or two around 20,000 BP.

Solutréen inférieur: Lower (Early) Solutrean.

Solutréen supérieur: Upper (Late) Solutrean

Solymar subphase: A biostratigraphic subphase in the Pannonian basin comprising the latest part of the Middle Pleistocene (“Riss”). At least partly equivalent to MNQ 24. Named after site HU 69.

Spät(es) Würm: Late Würmian, usually meaning the part of the last glaciation after the glacial maximum.

Spätmagdalenien: Late Magdalenian.

Spätsolutreen: German for Late Solutrean. Actually this term is often used in older sources for the Gravettian q. v.

Stadial: A colder phase within a glacial cycle, often characterized by a glacial advance.

- Sterile:** A term used (a) for a layer without archaeological remains, but quite possibly with fossil remains, and (b) for a layer entirely without organic remains.
- Stillfried B:** An Würmian interstadial in the Austria/Czechia area, probably approximately equivalent to Hengelo-Denekamp.
- Subalyuk substage:** A Late Pleistocene biostratigraphic substage in the Pannonian basin approximately equivalent to the later part of IS 5a-IS 5d. Named after Subalyuk cave (site HU 47).
- Süttö:** A biostratigraphic subphase in the Pannonian basin comprising the last interglacial (IS 5) equivalent to MNQ 25. Named for site HU 48/51.
- Szeletian:** A Late Middle Palaeolithic culture in Central Europe (mainly Hungary, Czechia and Slovakia). One of a complex of cultures characterized by Blattspitzen (leaf points) it is in some respects transitional between Middle and Upper Palaeolithic cultures and probably dates to ca. 35–50 KA BP.
- Taimyrsk Interstadial:** The Siberian equivalent of the Bölling/Alleröd interstadial.
- Tardenoisien:** A Mesolithic culture which succeeds the Azilian in France. The term has however been used more or less as a synonym for Mesolithic in other areas, e. g., Ukraine.
- Tardiglacial:** Late Glacial (French).
- Tardigravettian:** Late Gravettian/Epigravettian.
- Tarkö(ian) phase:** A Middle Pleistocene biostratigraphic phase in the Pannonian basin probably approximately equivalent to parts of MNQ 21 and 22. Named after site HU 55.
- Tayacian:** An early Palaeolithic culture without hand axes, possibly ancestral to the Mousterian. Found in Western Europe during the Late Middle Pleistocene ("Riss").
- Templomhegy phase/substage:** An Early Pleistocene biostratigraphic phase in the Pannonian basin, probably largely equivalent to MNQ 20.
- TL:** Thermoluminescence (dating).
- Tokodian substage:** A Late Pleistocene biostratigraphic substage in the Pannonian basin possibly equivalent to IS 4. Named for site HU 57.
- Travertine:** Freshwater limestone usually deposited by springs.
- Tursac oscillation:** A minor interstadial in the SW French sequence, dated to ca. 22,000–23,000 BP.
- Typical Mousterian:** See Mousterien (typical).
- U/Th:** Uranium/Thorium dating

Upper Palaeolithic: The latest part of the Palaeolithic, beginning ca. 30,000–40,000 BP in Europe. Usually characterized by a lithic technology based on blades, a much larger variety of tools than formerly, extensive use of bone artifacts and (often) objects of art and adornment. With the possible exception of the Chatelperronian (q. v.) and perhaps similar transitional cultures (e. g. Szeletian?) Upper Palaeolithic cultures seem to be associated exclusively with modern humans.

Upper Pleniglacial: The late Weichselian glacial maximum ca. 17–22 KA BP.

Upper Villafranchian: see Villafranchian.

Uppony subphase: A biostratigraphic subphase in the Pannonian basin comprising part of the “mid Middle Pleistocene” (“Mindel”). Probably equivalent to the later part of MNQ 22.

Varbóian substage: A Late Pleistocene biostratigraphic substage in the Pannonian basin probably equivalent to the early part of the interval IS 5a–5d.

Verteszöllös subphase: A biostratigraphic subphase in the Pannonian basin comprising part of the “mid Middle Pleistocene” (“Mindel”). Probably equivalent to part of MNQ 22. Named for site HU 65.

Villafranchian (-ien): Originally a lithostratigraphic term from northern Italy, Villafranchian has been used extensively as a biostratigraphic name for Pliocene/Early Pleistocene mammal faunas. Early and Middle Villafranchian (Villafranchien inférieur and moyen) (ca. 2,5–4 and 2–2,5 MA BP respectively) together comprise most of the Pliocene, except the earliest part, while Late Villafranchian (Villafranchien supérieur) (ca. 1–2 MA BP) is approximately equivalent to the Early Pleistocene.

Villanyian (-ium): A Biostratigraphic stage in the Pannonian basin. Consists of the three substages Csarnota, Beremend and Kisláng and comprises most of the Pliocene and perhaps earliest part of the Pleistocene.

Wirm: Russian for Würm q. v.

Weichsel: The last glaciation in the North-european sequence. Equivalent to IS 2–5d (10–117 KA BP) and Würm in the Alpine sequence.

Weichsel Pleniglacial: The coldest part of the Weichselian glacial cycle ca. 15,000–22,000 BP.

Wolstonian s. s.: The penultimate glaciation in the English sequence. Equivalent to Saale (IS 6) ca. 127–195 KA BP. However deposits traditionally assigned to the Wolstonian in some cases probably date from several cold phases (IS 6, 8 and perhaps 10?).

Würm: The last glaciation in the Alpine (Penck/Brückner) sequence. Equivalent to IS 2–5d (10–117 KA BP) and Weichsel in the North European sequence. W(ürm) I–IV (1–4) and W(ürm) I/II–III/IV (1/2–3/4) are widely used to designate cold phases (stadials) and milder phases (interstadials) within

the Würmian respectively, but unfortunately the meanings of these terms vary greatly from country to country or even from author to author. Thus W I, the first cold phase of the Würmian/Weichselian glacial cycle might apply to any of the stadials IS 5d, IS 5b and IS 4 or a combination of these.

Würm ancien: “Old Würm”, probably approximately equivalent to IS 5a–5d.

Würmian incipient: Romanian for earliest Würm

Würmian mediu: Romanian for mid-Würmian

Biostratigraphic Correlation	Mammal Zones	"Classical" Alpine sequence	Biostratigraphy Pannonic Basin	IS	Stratigraphy Lower Rhine Area	Stratigraphy British Isles	Absolute Age (MA BP)	Pannonic Basin	Czechia	Poland	Germany	British Isles	Spain	Italy	Balkans	Middle East N. Africa	Caucasia	China
Q4	MNQ 26	Würm	Varbó	2.4-4.4 Saal	Weichselian	Devensian	0.117	Corckswende	Kármán Limestone		Starchen Unteroligozän			Sarropollare				
3	MNQ 25	R/W	Süttő	5e	Eemian	Ipwichian		Sádkő 1.2, 4.9	Neopercina 13		Tuscan Elzevirian	Cala Verde			St. Tereza			
Q3	MNQ 24	Riss	Solyvár	6	Warthe Saalian	Weistonian	0.126	Lécsút	Sopk 6		Horne	Perla			Vrhnica (J)	Megaron et Zythos		
2	MNQ 23	"M/R"	Castellum	7	"Holsteinian"	"Hoxnian"	0.25	Chapin 6	Chapin 6		Harpertown (Harpertown)	Neaperta			Vrhnica (K)	Kulturno et Zythos		
1	MNQ 22	"Mindel"	Vertesztölös	8	Elsterian	Anglian	0.357	Chapin 5	Chapin 5		Harpertown (Harpertown)	Neaperta			Vrhnica (K)	Kulturno et Zythos		
Q2	MNQ 21	"G/M"	Tarkó	13	Elsterian	Anglian	0.47	Chapin 4	Chapin 4		Harpertown (Harpertown)	Neaperta			Vrhnica (K)	Kulturno et Zythos		
1	MNQ 20	"Günz"	Tempom-hegy	15	Elsterian	Anglian	0.76	Chapin 3	Chapin 3		Harpertown (Harpertown)	Neaperta			Vrhnica (K)	Kulturno et Zythos		
Q1	MNQ 19	Lake	Betfia	21	Elsterian	Anglian	1.0	Chapin 2	Chapin 2		Harpertown (Harpertown)	Neaperta			Vrhnica (K)	Kulturno et Zythos		
1	MN 18		Kisling		Elsterian	Anglian	1.7	Chapin 1	Chapin 1		Harpertown (Harpertown)	Neaperta			Vrhnica (K)	Kulturno et Zythos		
1	MN 17				Elsterian	Anglian	2.1	Chapin 0	Chapin 0		Harpertown (Harpertown)	Neaperta			Vrhnica (K)	Kulturno et Zythos		
1	MN 16				Elsterian	Anglian	2.3	Chapin 0	Chapin 0		Harpertown (Harpertown)	Neaperta			Vrhnica (K)	Kulturno et Zythos		
1	MN 15				Elsterian	Anglian	3.0	Chapin 0	Chapin 0		Harpertown (Harpertown)	Neaperta			Vrhnica (K)	Kulturno et Zythos		
1	MN 15				Elsterian	Anglian	3.5	Chapin 0	Chapin 0		Harpertown (Harpertown)	Neaperta			Vrhnica (K)	Kulturno et Zythos		

CHART 1. Early-Middle Pleistocene

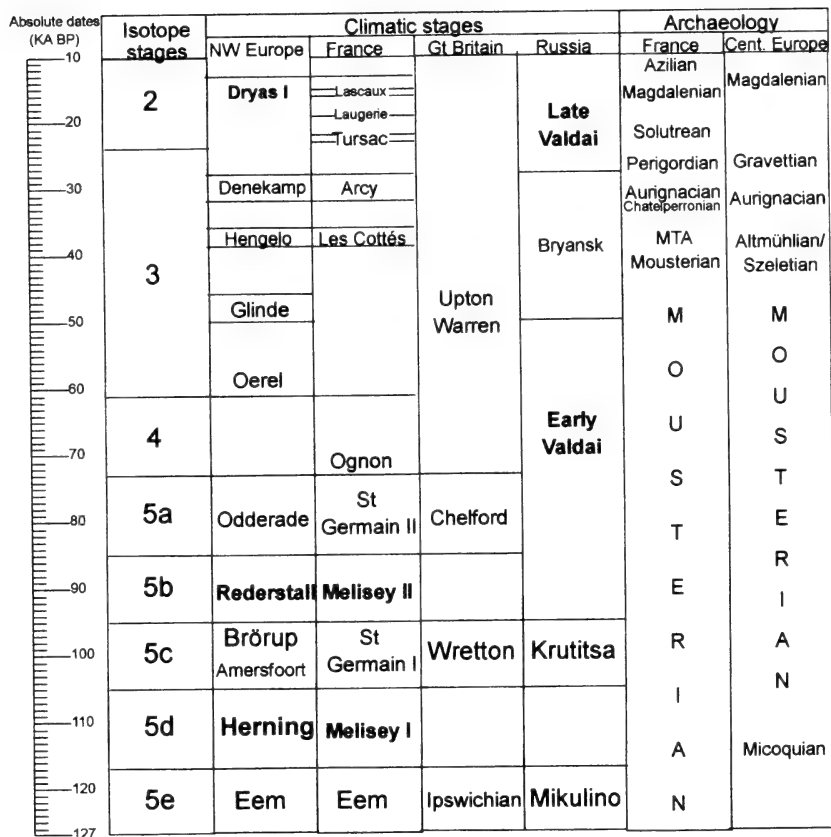


CHART 2. Late Pleistocene

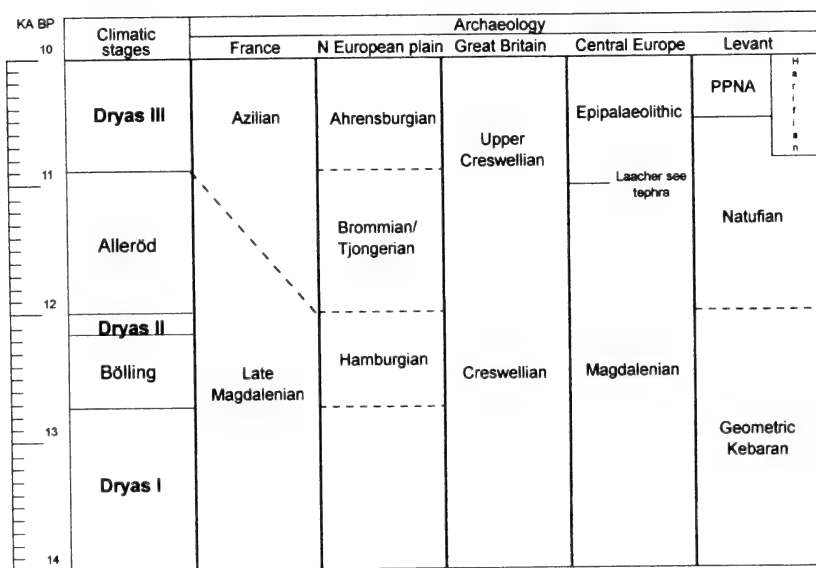


CHART 3. Late Glacial

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 AU 3 Drachenhöhle bei Mixnitz
 AU 3 Mixnitz
 AU 4 Eichmaierhöhle
 AU 5 Badlhöhle, Grosse Badlhöhle
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 AU 8 Hundsteig bei Krems, Krems, Krems-Hundsteig
 AU 9 Oxenloch, Luegloch
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 AU 15 Schusterloch
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 AU 17 Schwarzgrabenhöhle
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 AU 19 Bärenhöhle bei Kufstein, Schoferhöhle, Tischoferhöhle
 AU 20 Willendorf
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 BE 2 Goyet
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 BE 4 Coléoptère, Grotte de Coléoptère
 BE 5 Liege
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 BE 7 Marie-Jeanne
 BE 8 Pauline, Princesse Pauline
 BE 9 Remouchamps
 BE 10 Magrite, Trou Magrite
 BE 11 Chaleux, Trou de Chaleux
 BE 12 Frontal, Trou de Frontal
 BE 13 Naulette, Trou de la Naulette
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 BE 15 Nutons, Trou des Nutons
 BE 16 Sureau, Trou du Sureau
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 BH 3 Bijambarska Pecina, Gornja Bijambarska Pecina
 BH 4 Marinova Pecina
 BH 5 Megara, Kuvija, Nilatova
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 BRD 1 Altenburg bei Pössneck, Pössneck
 BRD 2 Andernach
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 BRD 5 Baumannshöhle bei Rübeland, Rübeland
 BRD 6 Beilsteinhöhle
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 BRD 8 Bildstockfels
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 BRD 12 Bockstein Törle, Bocksteinschmiede, Törle
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- BRD 14 Breitenberghöhle bei
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- BRD 33 Friesing
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- BRD 37 Fuchsloch im Krockstein
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- BRD 38 Gaiskirche im Püttlachtal
- BRD 39 Gaisloch bei Münzinghof
- BRD 40 Geissenklösterle
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- BRD 50 Gönnersdorf
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- BRD 56 Heinrichgrotte bei
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- BRD 57 Helmloch bei Etzelwang
- BRD 58 Hermannshöhle bei
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- BRD 62 Hohler Fels bei Happurg
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- BRD 72 Kleine Scheuer am
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- BRD 73 Kleine Scheuer im Lonetal
- BRD 74 Kleine Teufelshöhle bei
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- BRD 75 Kl. Ofnet, Ofnet
- BRD 76 Kniegrotte
- BRD 77 Kreuzgrotte bei
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- BRD 78 Bilstein, Bilsteinhöhle,
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- BRD 79 Bilstein, Kulturhöhle II,
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- BRD 80 Bilstein, Kulturhöhle III,
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- BRD 81 Geiseltal,
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- BRD 82 Lahntal
- BRD 83 Langenaubach
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- BRD 85 Lindenthaler Hyänenhöhle
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Wolfgang, St. Coloman
- BRD 101 Nische im Velburger
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- BRD 108 Phoebe
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- BRD 133 Sudmer-Berg 1,
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- BRD 143 Urdhöhle
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Betzenstein
- BRD 146 Weimar
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- BRD 148 Mauern, Weinberghöhlen
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- BRD 149 Weinheim
- BRD 150 Westeregeln bei
Magdeburg
- BRD 151 Steeden, Wildscheuer bei
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- BRD 152 Wildweiberlei
- BRD 153 Wildweiberhaus-Felsen
- BRD 154 Sackdilling, Sackdillinger
Höhle, Windloch bei Sackdilling
- BRD 155 Wüste Scheuer, Döbritzer
höhle
- BRD 156 Zwergloch
- BRD 157 Endingen
- BRD 158 Steinheim an der Murr
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- BU 1 Bacho Kiro
- BU 2 Cave N:o 16
- BU 3 Morovitsa Cave
- BU 4 Temnata Cave/Doubka
- BU 5 Karlukovo 4
- BU 6 Slivnica/Slivnitsa
- CH 1 Balm bei Günzberg, Unter
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- CH 2 Brügglihöhle
- CH 3 Bsetzi, Untere Bsetzi
- CH 4 Kilchli, Chilchli
- CH 5 Caverne des Dentaux,
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- CH 6 Drachenloch
- CH 7 Ettingen, Abri Büttenloch,
Büttenloch
- CH 8 Rosenhalde im Freudental,
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- CH 9 Gondiswil-Zell
- CH 10 Cotencher, Grotte de
Cotencher
- CH 11 Grotte du Scé/Scex,
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- CH 12 Birseck Hohler Fels,
Hohlefels Mittlere Höhle,
Hohlefelsabri, Hohlenfels,
Hohlfelsabri, Müllers Abri III
- CH 13 Hollenberg-Höhle 3
- CH 14 Kastelhöhle
- CH 15 Heidenküche, Kessiloch
- CH 16 Kesslerloch, Thaynger
- CH 17 Kohlerhöhle
- CH 18 Liesbergmühle (Abri)
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- CH 20 Neumühle
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- CH 22 Rislisberghöhle
- CH 23 Saint Brais I
- CH 24 Schalberg
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- CH 26 Schnurenloch
- CH 27 Schweizersbild
- CH 28 Schlossfelsen von
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- CH 29 Wildkirchli
- CI 1 Cave No. 1 Chen Chihli, Chen
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- CI 2 Chao Kon in Kung Hsien,
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- CI 4 Ching Hsing coal mine
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- CI 8 Choukoutien, loc. 1,
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- CI 10 Choukoutien, loc. 3,
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- CI 11 Choukoutien, loc. 4,
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- CI 19 Feng Ming P'o
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 Taodian
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 CI 28 Jing Niu Shan, Jinniushan
 CI 30 Kuo Yü Kou
 CI 31 K'ihö on Wei river
 CI 32 K'ou An
 CI 33 Liang-Chia T'an
 CI 34 Ling-ching
 CI 35 Chihli, Loc. 61, Chihli
 CI 36 Luda Shi
 CI 38 P'ing-Lu-Hsien
 CI 39 Sha-Wa-Tsun
 CI 40 Loc. 63661, Shih-yü, Shiyu
 CI 41 Salawusu, Sjara-osso-gol
 CI 42 Ssu-shui Hsien
 CI 43 Taigu
 CI 44 Yang-T'ai-Chuang
 CI 45 Ts'ai Chia Chuang
 CI 46 Hsi An Honein, Tung Huang
 Nü Yüan in Hsi An Honein
 CI 47 Unknown loess loc.
 CI 48 Uxin Qi
 CI 49 Wan Xian, Yen-Ching-Kou in
 Wanh sien
 CI 50 Wu-An Hsien, Wuan
 Riverbank
 CI 51 Hsiao-nan-hai, Xiaonanhai
 CI 52 Xueguan
 CI 53 Xujia Yao, Xujiayao
 CI 54 Mien Chih Hsien, Yang Shao
 Tsun in Mien Chih Hsien
 CI 55 Kalgan, Yao-chin-Chuang,
 Yao Kuan Chuang, Zhangjiakou
 CI 56 Yunshui Cave
 CI 57 Yushe
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 Bukovci pecina
 CR 2 Drazica, Lesce
 CR 3 Druska Pec
 CR 4 Horvatova spilja/Pecina,
 Kruscica, Kruscice u lici
 CR 5 Klek
 CR 6 Krapina, Husnjakovo Brdo
 CR 7 Kamenika, Pecina
 Kamenika
 CR 8 Brini, Pecina u Brini
 CR 9 Podumci
 CR 10 Razvod(j)e
 CR 11 Romualdo, Romualdovo
 spilja
 CR 12 Sandalja I
 CR 13 Sandalja II
 CR 14 Tatinja draga
 CR 15 Vela Spilja
 CR 16 Mackova-höhle, Velika
 Pecina
 CR 17 Lipi, Vela Pec, Velika pec na
 Lipi
 CR 18 Veternica
 CR 19 Vindija
 CY 1 Aetokremnos, Akrotiri
 Aetokremnos
 CZ 1 Adler-höhle, Adlerova Jeskyne
 CZ 2 Balcar-Fels, Balcárka,
 Balcarova Skála, Balzarfelsgrotte
 CZ 3 Bockova díra, Fürst Johann-
 Höhle, Grosse Lautscher Höhle
 CZ 4 Bulovka
 CZ 5 Byci Skála, Stierfels-Höhle
 CZ 6 Certova Díra, Teufelsloch,
 Zwergenhöhle
 CZ 7 Cesky Krumlov
 CZ 8 Dekansky Vrch
 CZ 9 Dolní Vestonice
 CZ 10 Holstejn
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CZ 18	Kolibka-Grotte, Kolíbky, Wiegenhöhle	CZ 54	Chlum 6
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CZ 22	Kravská díra	DA 2	Borgbakke
CZ 23	Kulna	DA 3	Bromme
CZ 24	Kulnicka	DA 4	Köge bugt
CZ 26	Michalova díra/jeskyne, Wolfshöhle	DA 5	Lysmosen
CZ 27	Millowitz, Milovice	DA 6	Lönstrup Klint
CZ 28	Pavlov, Pollauer Berge	DA 7	Nörre Lyngby
CZ 29	Backofen-Höhle, Kostelik, Mokerska, Mokrauer Höhle, Pekárna	DA 8	Villestofte
CZ 30	Pod Hradem	EG 1	Abu Noshra II (Wadi Feiran)
CZ 31	Podkova	EG 2	Ballana, Site 8957
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CZ 33	Prezletice	EG 5	Bir Tarfawi
CZ 34	Ludmirau, Pruchodice I, Sanova díra	EG 6	Bir Tarfawi (E-86-1)
CZ 35	Rytířská u Macochy	EG 7	Bir Tarfawi (E-86-2)
CZ 36	Prokopi-Höhle, Sankt Prokop-Höhle	EG 8	Bir Tarfawi (E-87-1)
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Qadesh Barnea QB 9
- EG 38 Kadesh Barnea QB 501,
Qadesh Barnea QB 501
- FR 1 Abeurador
- FR 2 Abri Bourgeois-Delaunay
- FR 3 Abri Castanèt
- FR 4 Abri Dufaure
- FR 5 Abri Faustin, Moulin de
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- FR 6 Abri Fritsch (aux Roches),
Roches
- FR 7 Abri Gay
- FR 8 Abri Lafaye, Bruniquel
- FR 9 Abri Mège
- FR 10 Abri No 1 de Chinchon
- FR 11 Abri Olha, Olha (1)
- FR 12 Abri Pataud
- FR 13 Abri Suard, La Chaise
- FR 14 Abri du Calvaire
- FR 15 Abri de Campalou
- FR 16 Abri de Fontalès,
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- FR 17 Abri de Pageyral, Delluc de
Tayac, Grotte de Pageyral
- FR 18 Abri de Rochedanne
- FR 19 Abri de Roquecoubère
- FR 20 Abri de Roquefure
- FR 21 Abri de Vauloubau
- FR 22 Abri de la Genière
- FR 23 Abri des Battuts
- FR 24 Abri des Pêcheurs, Les
Pêcheurs
- FR 25 Abri du Blot
- FR 26 Abri du Facteur
- FR 27 Abri du Sault
- FR 28 Abri supérieur de Colombier
- FR 29 Adaouste
- FR 30 Aldène, Fausan, Fauzan,
Grotte de Minerve, Grotte de
Vieulac, Vienbac
- FR 31 Aude
- FR 32 Aurensan inférieure
- FR 33 Aurensan supérieur,
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- FR 34 Auzières II à Methamis
- FR 35 Avignon
- FR 36 Badegoule
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- FR 40 Balme de Glos
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la Balme
- FR 42 Baume de Gonvillars
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- FR 47 Blassac
- FR 48 Bois du Cantet, Grotte
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- FR 49 Bois-Ragot, Gouex
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- FR 54 Biehle, Cap de la Biehle, Cap
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Nestier
- FR 55 Carcassonne
- FR 56 Carrière Fournier
- FR 57 Carrière de Baudran
- FR 58 Cauna de Belvis
- FR 59 Caune de l'Arago
- FR 60 Caverne de Bèthenas
supérieure
- FR 61 Caverne de Vergisson
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- FR 63 Arcy-sur-Cure, Caverne
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- FR 65 Abri des Roches, Charasse II,
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- FR 67 Cimay à Evenos
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- FR 73 Demoiselles, Grotte des
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- FR 76 Duruthy
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 FR 95 Grotte Gazel, Sallèles-Cabardès
 FR 96 Arlay, Grappin, Grotte Grappin
 FR 97 Grotte Jean-Pierre N:o 1, Saint Thibaud
 FR 98 Grotte Noëlle
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 FR 100 Grotte Saint-Martin
 FR 101 Arudy-Espalungue, Grotte Saint-Michel d'Arudy, Saint-Michel (d'Arudy)
 FR 102 Grotte Simard
 FR 103 Brengues/Brenguez, Breugues, Grotte de Brengues
 FR 104 Grotte de Gabillou
 FR 105 Grotte de Gargas
 FR 106 Grotte de Gatzarria
 FR 107 Grotte de Gouërris
 FR 108 Grotte de Gourdan, Grotte de l'Eléphant, Grotte Murée
 FR 109 Grotte de Junqua, Gouffre de Junqua
 FR 110 Grotte de Lacombe, La Combe
 FR 111 Grotte de Laffray
 FR 112 Grotte de Laugerie-Basse
 FR 113 Grotte de Lherm, Grotte de l'Herm
 FR 114 Grotte de Lortet, Grotte Piette
 FR 115 Grotte de Lourdes, Espélugues/Espélungues
 FR 116 Ker, Queire, Grotte de Massat, Grotte inferieur de Queire/Ker, Massat
 FR 117 Grotte de Montgaudier/Montgodier, Mongodier, Montgaudier, Montgodier
 FR 118 Grotte de Nichet
 FR 120 Grotte de Raymonden
 FR 121 Grotte de Rizerolles
 FR 121 Rizerolles à Azé
 FR 122 Grotte de l'Eglise à Saint-Martin d'Excideuil, Grotte de Saint-Martin d'Excideuil, l'Eglise à Saint-Martin d'Excideuil
 FR 123 Grotte de Sirejol
 FR 124 Grotte de Tarté
 FR 125 Grotte de Tibiran
 FR 126 Grotte de la Carrière à Gerde, Grotte de Gerde
 FR 127 Chèvre, Grotte de la Chèvre, la Chèvre
 FR 128 Gorge d'Enfer, Grotte de la Gorge d'Enfer, la Gorge d'Enfer
 FR 129 Grotte de la Mairie, Teyjat
 FR 130 la Tour-de-Farges
 FR 131 Grotte de la Vache
 FR 132 Grotte de l'Homme Mort
 FR 133 Grotte de l'Observatoire
 FR 134 Cèdres, des Cèdres, Grotte des Cèdres
 FR 135 des Eglises, Eglises, Grotte des Eglises, Ussat
 FR 136 Grotte des Escabasses
 FR 137 Grotte des Escoutiers
 FR 138 Grotte des Eyzies, Grotte Les Eyzies, Grotte Richard
 FR 139 Grotte des Fees
 FR 140 Châtelperron, Grotte des Fées à Châtelperron

- FR 141 Grotte des Harpons
 FR 142 Grotte des Hoteaux
 FR 143 Grotte des Rideaux
 FR 144 Grotte des Romains
 FR 145 Grotte di Macinaggio
 FR 146 Grotte du Fustié, Grotte Bernard
 FR 147 Grotte du Lazaret
 FR 148 Grotte du Lazaret, Locus VIII, Lazaret, Locus VIII
 FR 149 Grotte du Moustier
 FR 150 Grotte de Placard, Grotte du Placard
 FR 151 Grotte du Portel, Grotte de Crampagna, Loubens
 FR 152 Grotte du Tuteil
 FR 153 Aure, Grotte d'Aure
 FR 154 Aurignac, Grotte d'Aurignac
 FR 155 Grotte d'Ebbou
 FR 156 Embulla, Grotte d'Embulla
 FR 157 Grotte de l'Escale à Saint-Esteve-Janson, Saint-Esteve-Janson
 FR 158 Bisqueytan, Grottes de Jaurias
 FR 159 Grottes de Veyrier
 FR 160 Grottes des Baumas des Bails
 FR 162 Hortus
 FR 163 Igue de Pépin
 FR 164 Igue de Saint-Sol-Belcastel
 FR 165 Isturitz
 FR 166 Jaurens à Nespouls
 FR 167 Jobertas
 FR 168 La Balme à Cuiseaux
 FR 169 La Colombière
 FR 170 Grotte de la Crouzade
 FR 171 La Fage, Abimes de La Fage
 FR 172 La Ferrassie
 FR 173 Grand Baille, La Grand Baille
 FR 174 La Madeleine
 FR 175 La Quina
 FR 176 La Roche Plate
 FR 177 La Trémie à Cassis
 FR 178 Lachaud
 FR 179 Lacombe-Tayac, Tayac
 FR 180 Langeroché, Longueroché
 FR 181 Laroque II
 FR 182 Las Bufios
 FR 183 Laugerie Haute
 FR 184 Laugerie Haute Est
 FR 185 Laugerie Haute Ouest
 FR 186 Le Passagère
 FR 187 Le Vallonet
 FR 188 Balmes de Villereversure
 FR 189 L'aven des Valerots, Les Valerots
 FR 190 Lyon
 FR 191 L'Aven des Planes
 FR 192 L'Esquicho-Grapaou
 FR 193 Grotte de Malarnaud
 FR 194 Maldidier
 FR 195 Margine Cave, Grotta delle Margine
 FR 196 Mas Rambault
 FR 197 Grotte de la Tour de Farges, Lunel Vie(i)l, Mas de Caves à Lunel-Viel, Tour-de-Farges, Mas Gauthier
 FR 198 Azil, Mas d'Azil
 FR 199 Mallet, Mialet/Miallet, Grotte de Fort
 FR 200 Montmorency
 FR 201 Montmorillon
 FR 202 Montoussé 3
 FR 203 Montoussé 4
 FR 204 Montoussé 5
 FR 205 Montpellier
 FR 206 Morin
 FR 207 Néron
 FR 208 La Northe, Nerthe, Northe
 FR 209 Neschers
 FR 210 Orciers
 FR 211 Orgnac 3
 FR 212 Padirac
 FR 213 Pair-non-Pair
 FR 214 l'Ajasse, Pech de l'Ajasse
 FR 215 l'Azé I, Pech de l'Azé I
 FR 216 l'Azé II, Pech de l'Azé II
 FR 217 Petit Puymoyen

FR 218	Phosphorites de Quercy, Quercy	FR 254	Abri du Lagopède
FR 219	Piège	FR 255	Combe Saunière 1
FR 220	Pié Lombard	FR 256	Grotte des Oiseaux
FR 221	Pont d'Ambon	FR 257	Capins, Les Capins
FR 222	Poron des Cuèches	GE 1	Abkhaskie pamyatniki
FR 223	Peyreignes, Puits de Peyreignes	GE 2	Akhalkalaki
FR 224	Ramandils	GE 3	Bavra
FR 225	Grotte le Repaire, Repaire de Voutenay, la Roche-Percée	GE 4	Dmanisi
FR 226	Rhodes II	GE 5	Dzhurchula
FR 227	Roc de Combe	GE 6	Gvardzhilas-Klde
FR 228	Roc de Marcamps	GE 7	Apiancha
FR 229	Rochereil	GE 7	Kej-Bogaz, Kep Bogaz/Bagaz, Kjop-Bugas
FR 230	Rois	GE 8	Khupinipshakva, Khupyn Ipshchakhva/ Ipshakhva, Cholodny Grot, Chupyna
FR 231	Rond-du-Barry	GE 9	Kudaro 1
FR 232	Saint Romans	GE 10	Kudaro 2
FR 233	Sainte Eulalie	GE 11	Kudaro 3
FR 234	Saint-Acheul	GE 12	Kva-Chara
FR 235	Salpêtre à Pompignan, Cave de Rémoulins	GE 13	Mgwimewi
FR 236	Grotte du Pont-du-Gard, Remoulins, Salpêtrière à Remoulins	GE 14	Okumi I
FR 237	Savigny	GE 15	Sagvardzhilas-Klde, Sagvardzhile
FR 238	Senèze	GE 16	Sary-Leget
FR 239	Solutré, Clos du Charnier, Creux du Charnier	GE 17	Shagat-Khokh-Leget
FR 240	Grotte de las Maretas, Soulabé	GE 18	Talyng-Leget
FR 241	Tastevin	GE 19	Bugas-Klde, Tsona
FR 242	Terra Amata	GE 20	Tsutskhvat
FR 243	Toga	GE 21	Zurtaketi
FR 244	Essone, Tourbes d'Essonne, Tourbieres d'Essone	GR 1	Apopanti
FR 245	Bize, Grande grotte de Bize, Grotte de Bize, Tournal	GR 2	Cave SE Pigadia
FR 246	Trois Frères	GR 3	Elaichoria 3
FR 247	Trou Violet, Tuto Biouleto	GR 4	Gerani II
FR 248	Trou de Diable	GR 5	Gerani IV
FR 249	Tute de Carrellore	GR 6	Gumbes B
FR 250	La Tuto de Camalhot, Tute de Camayoy, Camayot, Grotte de St Jean-de-Verges, Tutto de Camayot	GR 7	Gumbes C
FR 251	Vergisson 2	GR 8	Kephalari
FR 252	Vergranne	GR 9	Kitsos
		GR 10	Liko Cave
		GR 11	Mavro Mouri
		GR 12	Nesakia
		GR 13	Petralona
		GR 14	Rethymnon fissure
		GR 15	Simonelli Cave
		GR 16	Sourida fissure

- GR 18 Tourkobounia 2
 GR 19 Tourkobounia 5
 GR 20 Tylos
 GR 21 Vraóna
 HU 1 Baitz
 HU 2 Balla
 HU 3 Ballavölgy, Balvavölgy
 HU 4 Beremend 4
 HU 5 Beremend 16-17
 HU 6 Beremend (Late Pleistocene Loess)
 HU 7 Bivak
 HU 8 Buják
 HU 9 Csákvár, Esterházy Cave, Báraczkáza
 HU 10 Csarnóta 1
 HU 11 Diosgyőr
 HU 12 Dorog
 HU 13 Érd
 HU 14 Gencsapáti
 HU 15 Háromkút
 HU 16 Herman Ottó Cave, Ottó Herman Cave
 HU 17 Hollókö
 HU 18 Hóman
 HU 19 Horvölgy
 HU 20 Istállóskő
 HU 21 Baitz Cave, Bajót-Öregkö, Jankovich, Öregköhőle bei Bajót
 HU 22 Kálmán Lambrecht Cave, Lambrecht Cave
 HU 23 Kecskégalya
 HU 24 Csobánka, Kiskevény
 HU 25 Kisláng
 HU 26 Balatonföldvár, Köröshegy
 HU 27 Kenyér hill, Köszeg, Seybold Hill/Stone Quarry, Szaybold Hill
 HU 28 Kövesvárad
 HU 29 Lovas
 HU 30 Mérk
 HU 31 Nagyharsány-hegy 3
 HU 32 Nagyharsány-hegy (1-4)
 HU 33 Osztramos 2
 HU 34 Osztramos 5
 HU 35 Osztramos 8
 HU 36 Peskö
 HU 37 Peskö II, Petényi Cave
 HU 38 Pilisszántó 1
 HU 39 Porlyuk
 HU 40 Poroslyuk
 HU 41 Puskaaporos
 HU 42 Emmy reockshelter, Rejte 1, Szarvaskő
 HU 43 Remete Cave, Remete Felső
 HU 44 Remetehegy
 HU 45 Sály
 HU 46 Somssich hill 2, Somssichhégy 2
 HU 47 Mussolini-höhle, Subalyuk
 HU 48 Süttő 1,2,4
 HU 49 Süttő 6
 HU 50 Süttő 7
 HU 51 Süttő 9
 HU 52 Bakonybél, Pörgölhegy, Szárazgerence
 HU 53 Szeleta
 HU 54 Szelim
 HU 55 Tarkő
 HU 56 Tata
 HU 57 Tokod-Nagyberek
 HU 58 Uppony 1
 HU 59 Burgberg-Hilton, Várhegy-Hilton, Várbarlang
 HU 60 Castle hill, Várhegy, 16 Országház str.
 HU 61 Castle hill, Várhegy, 20 Országház str.
 HU 62 Budapest-Várbarlang, Castle hill, Várhegy, 25 Fortuna str.
 HU 63 Castle hill, Várhegy, Uri-Gasse 72
 HU 64 Vaskapu
 HU 65 Vérteszöllös 2
 HU 66 Villány 3, Villány-Kalkberg Nord
 HU 67 Űrömhegy
 HU 68 Ölyvesköer Fuchslösch
 HU 69 Solymar, Ördöglyuk
 IC 1 Melabakkar
 IR 1 Alice and Gwendolin Caves, Edenvale Caves

- IR 2 Ballybetagh bog
 IR 3 Ballynamintra Cave
 IR 4 Barntick Cave
 IR 5 Castlepook Cave
 IR 6 Catacomb Cave, Edenvale
 IR 7 Coffey Cave, Keshcorran J Cave
 IR 8 Keshcorran L Cave
 IR 9 Newhall Cave
 IR 10 Keshcorran P Cave, Plunkett Cave
 IR 11 Shandon Cave
 IRN 1 Asiab
 IRN 2 Khorramabad Valley (several sites)
 IRQ 1 Hazard Merd
 IRQ 2 Palegawra
 IRQ 3 Zaw-e-Chami, Zawi Chemi Shanidar
 IRQ 4 Nemrîk
 IS 1 Abu Salem (AS)
 IS 2 Abu Usba
 IS 3 Azariq I (A I)
 IS 4 Ain Aqev, Ein Aqev East (D 34)
 IS 5 Ein Aqev (D 31)
 IS 6 Ein Gev I
 IS 7 Erq El-Ahmar
 IS 8 Far'ah II
 IS 9 Gilgal
 IS 10 Hatula
 IS 11 Hayonim Cave
 IS 12 Ira 10 (I 10)
 IS 13 Ira 22 (I 22)
 IS 14 Ira 23 (I 23)
 IS 15 Jericho
 IS 16 Kebara
 IS 17 Kebara + Qafzeh
 IS 18 'Ain Mallaha, Eynan, Mallaha
 IS 19 Me'arat Shovakh, Mugharet esh-Shubbabiq
 IS 20 Mugharet-el-Zuttiyeh
 IS 21 Nahal Nizzana XIV (NN XIV)
 IS 22 Nahal Rut XVII (NR XVII)
 IS 23 Netiv Hagdud
 IS 24 Ramat Harif (G8)
 IS 25 Rosh Ein Mor (D15)
 IS 26 Rosh Hoesha (RH)
 IS 27 Rosh-Zin, Site D16
 IS 28 Sefunim Cave
 IS 29 Sefunim Shelter
 IS 30 Shluhat Harif (K3)
 IS 31 Shunera IX (SH IX)
 IS 32 Shunera VI (SH VI)
 IS 33 Shunera XVI (SH XVI)
 IS 34 Umm-Qatafa
 IS 35 Ubeidiya
 IS 36 Shunera III
 IT 1 Alghero
 IT 2 Archi
 IT 3 Arene Candide
 IT 4 Barma Grande
 IT 5 Buca Tana
 IT 6 Buca dei Ladri
 IT 7 Buca del Bersaglieri
 IT 8 Buca del Tasso
 IT 9 Buca d'Equi, Caverna di Equi
 IT 10 Buco del Quai
 IT 11 Bus de la Fanta, Bus del Termine
 IT 12 Cagliari
 IT 13 Cala dei Genovesi, Cala Genovesi a Levanzo, Grotta di Levanzo
 IT 14 Cala della Calcina
 IT 15 Cala di Luna, Grotte de Dorgali
 IT 16 Carnello (Sora), Sora
 IT 17 Castel di Guido
 IT 18 Cava C1 di S. Isidoro, S. Isidoro
 IT 19 Cava E di S. Isidoro
 IT 20 Cava Bianca, Cava Nera Molinario
 IT 22 Cava Panzini a Pontecorvo, Vetrine, Cava Sud à Soave, Sud à Soave
 IT 23 Caverna dei Verezzi
 IT 24 Caverna del Pastore, Grotta del Pastore, Tana del Pastore
 IT 25 Caverna delle Fate
 IT 26 Caverna di Pollera
 IT 27 Caves on Pianosa

- IT 28 Ceprano a Avarone, Colle Avarone
- IT 29 Colli Berici
- IT 30 Contrada Ianní di San Calogero
- IT 31 Covolo di Trene
- IT 32 Formazione Stagnale, Monte S. Paolo
- IT 33 Frascati
- IT 34 Grotta Guattari
- IT 35 Grotta Inferno a Scala
- IT 36 Grotta Luparello
- IT 37 Grotta Pietro Tampoia, Pietro Tampoia/Tamponi
- IT 38 Grotta Polesini
- IT 39 Grotta Rapaci
- IT 40 Grotta Romanelli
- IT 41 Grotta S. Agostino
- IT 42 Grotta Titti
- IT 43 Grotta Valdemino
- IT 44 Grotta Zinzulusa
- IT 45 Grotta all'Onda
- IT 46 Grotta dei Colombi
- IT 47 Grotta dei Fanciulli, Grotte des Infants
- IT 48 Grotta dei Gerbai
- IT 49 Grotta dei Giganti
- IT 50 Grotta del Broion
- IT 51 Grotta del Castello, Riparo del Castello
- IT 52 Grotta del Caviglione, Grotte de Cavillon
- IT 53 Grotta del Fossellone
- IT 54 Caverna di Gabrovizza, Grotta del Orso di Gabrovizza, Pytina Jama
- IT 55 Grotta del Principe, Grotte du Prince
- IT 56 Grotta del Uzzo
- IT 57 Grotta del Zachito
- IT 58 Cava di Sezze Romano, Grotta della Cava di Sezze Romano
- IT 59 Grotta della Madonna, Praia a Mare
- IT 60 Grotta della Volpe
- IT 61 Addaura, Grotta dell'Addaura
- IT 62 Grotta di Cardamone
- IT 63 Grotta di Corbeddu
- IT 64 Grotta di Cucigliana
- IT 65 Frola
- IT 65 Grotta di Frola
- IT 66 Grotta di Golino a Talamone
- IT 67 Grotta di Parignana
- IT 68 Grotta di Pertosa
- IT 69 Grotta di Veja A
- IT 69, 70 Ponte di Veia
- IT 70 Grotta di Veja E
- IT 71 Grotta di Pradis, Grotte Verdi di Pradis
- IT 72 Grottes de Grimaldi, Grottes de Mentone
- IT 73 Grottoni, I Grottoni
- IT 74 Ingarana
- IT 75 Loreto a Venosa
- IT 76 Malagrotta
- IT 78 Miniera della Polveriera, Monte Argentario
- IT 79 Monte San Giovanni
- IT 80 Monte Santa Cave
- IT 82 Monte Tignoso
- IT 83 Monte delle Gioie
- IT 84 Montorio
- IT 85 Notarchirico
- IT 86 Palidoro
- IT 87 Buco/Buca della Volpe, Pertugio della Volpe
- IT 88 Peschio Ranaro
- IT 89 Caverna di Cala Giovanna, Pianosa
- IT 90 Cava Pompei
- IT 90 Pofi
- IT 91 Punta di S. Giuliano
- IT 92 Fontana Ranuccio
- IT 93 Casal de' Pazzi/Pazzo, Rebibbia - Casal de' Pazzi
- IT 94 Riparo Mezzena
- IT 95 Riparo Salvini
- IT 96 Riparo Zampieri
- IT 97 Abri de Fumane, Riparo di Fumane

- IT 98 Rose-Mary
 IT 99 Saccopastore
 IT 100 Sambughetto Valstrona
 IT 101 Sedia del Diavolo
 IT 102 Serbaro di Romagnano
 IT 103 S. Cosimato, Valle
 dell'Aniene
 IT 104 S. Croce di Bisceglie
 IT 105 Tabuna a Ragusa
 IT 106 Grotte du Colombo, Tana
 del Colombo
 IT 107 Tane del Diavolo
 IT 108 Taurisano a Maglie
 IT 109 Tecchia di Equi
 IT 110 Terramara di Castelaccio
 IT 111 Torbiera della Cataragna
 IT 112 Torre Nave
 IT 113 Torre in Pietra
 IT 114 Val d'Arno, Il Tasso, Tasso
 IT 115 Valdiporro
 IT 116 Cava La Rocca, Sora, Valle
 Radice (Sora)
 IT 117 Velika Jama
 IT 118 Vitinia
 IT 119 Abri Soman, Riparo di
 Soman
 IT 120 Grotta Maggiore di San
 Bernardino
 IT 121 Montecarlo, Val d'Arno,
 Valdarno
 IT 122 Monte Reale
 IT 123 Spinagallo
 IT 124 Strette
 JA 1 Akiyoshidai
 JA 2 Aogashima
 JA 3 Gohezudo
 JA 4 Hahajima
 JA 5 Hamano-ko
 JA 6 Fujisawa, Hujisawa
 JA 7 Kawasaki
 JA 8 Mikkabi, Tadaki Quarry
 JA 9 Minatogawa
 JA 10 Nojiri-ko
 JA 11 Ogano, Yoshizawa-Sekkai
 Quarry
 JA 12 Pinza-abu
 JA 13 Shimojiburu Cave,
 Shimozibaru-do
 JA 14 Shiraiwa
 JA 15 Shiriya Quarry, Shiriya-zaki
 JA 16 Taishaku-Kannondo,
 Taishakukyo
 JA 17 Tsukinoki
 JA 18 Yage
 JA 19 Yoshitaka-mukaida
 JO 1 Ain el-Saratan, Azraq 18
 JO 2 Tor Faraj
 JO 3 Tor Hamar
 JO 4 Tor Sabiha
 JO 5 Uwaynid 18
 JO 6 Wadi Al Hammeh 27
 JO 7 Wadi Hasa, WHS Site 1065
 JO 8 Wadi el-Jilat 6, Wadi Jilat 6
 JO 9 'Ain Ghazal
 JO 10 Wadi el-Jilat 22
 KA 1 Karaungur
 KI 1 Chon-Chunkur
 KI 2 Syurpriz
 LB 1 Giarabub
 LI 1 Antelias Cave
 LI 2 Ksar 'Akil
 LI 3 Saaidé II
 LU 1 Oetrage
 MA 1 Benghisa gap
 MA 2 Calafra fissure
 MA 3 Gandia fissure, Ta Gandia
 fissure, Ta 'Kandja
 MA 4 Har Dalam, Ghar Dalam
 MA 5 Malta
 MA 6 Mnaidra/Mnajdra Gap
 MA 7 Musta ravine
 MA 8 Tal Ghaqba, Tal Herba fissure
 MA 9 Tal-Gnien
 MA 10 Jebbug, Zebbug Cave
 MG 1 Djadochta
 MG 2 Sharabakh Ussu, Bayn-Dzak
 MK 1 Makarovec
 MN 1 Crvena Stijena
 MN 2 Malisina stijena
 MN 3 Trebjesi
 MO 1 Brynseny I
 MO 2 Buteshty

- MO 3 Staryje Duruitory
 MO 4 Trinka/Trinki
 MO 5 Brynseny 2
 MR 1 Bou Knadel
 MR 2 Jebel Irhoud
 MR 3 Rabat
 MR 4 Ras Ashagar
 MR 5 Aïn Rhor
 NE 1 Bunde
 NE 2 Maastricht-Belvédère
 NE 3 Tegelen
 NO 1 Blomvåg
 NO 2 Skjonghelleren
 PG 1 Grotte das Fontainhas
 PG 2 Furninha, Grotte de Furninha
 PG 3 Figueira Brava, Gruta da Figueira Brava
 PG 4 Lapa da Rainha
 PG 5 Porto Santo
 PG 6 Sao Lourenco peninsula
 PO 1 Belchatów, Wola Grzymalina 59
 PO 2 Czajowice, Jaskinia Krakowska, Krakowska Cave
 PO 3 Dolne Male w Okopach
 PO 4 Dziadowa Skala, Jaskinia w Dziadowej Skale
 PO 5 Christburg, Dziezgon
 PO 6 Jaskinia Ciasna, Doliny Saspowskiej
 PO 7 Kadzielnia 1
 PO 8 Kalinów
 PO 10 Kozi Grzbiet
 PO 11 Koziażnia
 PO 13 Mamutowa, Wierzchowska dolna
 PO 14 Maszycka
 PO 15 Nad Mosurem Starym Duza
 PO 16 Niedostepna, Schronisko nad Jaskinia Niedostepna
 PO 17 Jerzmanowice, Nietoperzowa
 PO 18 Oblazowa 2
 PO 19 Okiennik
 PO 20 Jaskinia Puchacza, Puchacza Skala, Schronisko w Puchacz Skale.
 PO 21 Raj
 PO 22 Ruska Skala, Schronisko w Ruskiej Skale
 PO 23 Sadlana
 PO 24 Saspowska Zachodnia
 PO 25 Wojcieszów (Kauffung)
 PO 26 Jaskinia Zabia, Zabia Cave
 PO 27 Schronisko w Zalasie, Zalas
 PO 28 Zalesiaki 1A
 PO 29 Zamkowa Dolna
 PO 30 Zbojecka
 PO 31 Schronisko w Zytnej Skale, Zytia Skala
 PO 32 Oblazowa I
 RM 1 Adapostul cu ciulini
 RM 2 Betfia, Episcopia, Püspökfürdő, Somlyóhegy
 RM 3 Cheile Virghisului
 RM 4 Cuina Turcului
 RM 5 Devence/Devence, Deventului, Pestera Deventului
 RM 6 Galospetreu, cariera din D. Legiim Dealul Legii
 RM 7 Kronstadt, Brasov/Brassó, Gsprenghöhle
 RM 8 Gura-Chindiei
 RM 9 La Adam
 RM 10 Meresti
 RM 11 Binder, Cheile Turzii, Pestera Binder, Pestera lui Binder
 RM 12 Bordu Mare, Nandór-höhle, Ohaba-Ponor, Pestera Bordu Mare, Ponor-Ohaba
 RM 13 Pestera Cioarei
 RM 14 Climente I, Climente II, Pestera Climente I
 RM 15 Pestera Coiba Mare
 RM 16 Nandru, Pestera Curata
 RM 18 Pestera Gura Cheii
 RM 19 Pestera Hotilor
 RM 20 Pestera Icoana
 RM 21 Pestera Igrita
 RM 22 Pestera Izbîndis
 RM 23 Pestera Magura
 RM 24 Pestera Muierii
 RM 25 Napisteleu, Pestera cea Mica, Pestera Mica, Pestera Napisteleu

- RM 26 Pestera Rece
 RM 27 Pestera Tibicoaia
 RM 28 Pestera Ursilor
 RM 29 Pestera cu Apa, Pince Cave
 RM 30 Gyalyhöhle, Hideg-Szamos,
 Kalten-Szamos-Tal, Oase, Pestera
 cu Oase, Somesul Rece
 RM 31 Pestera din Platoul
 Cîmpeneasca
 RM 32 Pestera din Someseni,
 Szamosfalva Kies-Grube
 RM 33 Burzau, cariera de pe D.
 Costoi, Rîpa
 RM 34 Cheile Nerei
 RO 1 Achinskaya Stoyanka
 RO 2 Afontova Gora
 RO 3 Akhshatyr
 RO 4 Avdeyevo
 RO 5 Baraka(y)eskaya Peshchera
 RO 6 Berel(y)ekh
 RO 7 Bolshaia Glukhaia, Bol'shoi
 Gluchoi
 RO 8 Bugatsch
 RO 9 Chorenchoi
 RO 10 Diuktai, Dyuktaiskaya
 Peshchera
 RO 11 Fedaievo, Fedyevo
 RO 12 Gudskiy Naves 1,
 Monasheskaya
 RO 13 Ignatievskaya
 RO 14 Il'skaya I
 RO 15 Juresan basin
 RO 16 Karmalki
 RO 17 Khotylevo II
 RO 18 Klyuchevaya
 RO 19 Kokorevo II
 RO 20 Kostenki
 RO 21 Krasniy Yar
 RO 22 Liventzovka
 RO 23 Maly Vorontsovskaya
 Peshchera, Partisanskaya
 RO 24 Mal'ta
 RO 25 Matuzka
 RO 26 Medvezhya peshchera
 RO 27 Mezmaiskaya
 RO 28 Navalshinskaya Peshchera
 RO 29 Olyor suite
 RO 30 Pereselencheskii punkt,
 Pereseletschesky punkt
 RO 31 Selenga River
 RO 32 Selengskaya Daurija
 RO 33 Sergievskaya
 RO 34 Smelovskaya II
 RO 35 Sungir
 RO 36 Talitski, Ostrovskaya
 RO 37 Transbaikai
 RO 38 Treugolnaya
 RO 39 Troitzkosavask
 RO 40 Ust'-Kanskaya Peshchera
 RO 41 Eliseevich, Yeliseyevichi
 RO 42 Yudinovo
 RO 43 Kepshchinskaya, Kapshchin,
 Kepshinskaya Peshchera
 RO 44 Tashtyk I
 SA 1 Abu Sabbau
 SA 2 Qa'amiyat
 SA 3 Tuwairifa
 SA 4 Umm Tina
 SA 5 Umm al Qurun
 SA 6 'Ain Sala
 SK 1 Baráthegey-höhle
 SK 2 Dzeráva Skála, Pálffy Cave
 SK 3 Galgóc, Hlohovec
 SK 4 Gombasek, Gombaszög
 SK 5 Mehesz, Mihyska, Vcelare 1
 SK 7 Novi I
 SK 8 Novi III
 SK 9 Antal-Höhle,
 Oruzin/Oruzsin/O-Ruzsin
 SK 10 Porács
 SL 1 Betalov Spodmol
 SL 2 Hude Luknje
 SL 3 Lukenjska jama
 SL 4 Potocka Zijalka
 SL 5 Roska Spilja
 SP 1 Abric Romani
 SP 2 Aitzbitarte IV
 SP 3 Altamira
 SP 4 Amalda
 SP 5 Ambrona
 SP 6 Ambrona/Torralba
 SP 7 Arbreda

- SP 8 Arbreda II
 SP 9 Aridos 1
 SP 10 Atapuerca (La Galería)
 SP 11 Avenc de na Corna
 SP 12 Avenc del Gegant
 SP 13 Beefsteak Cave
 SP 14 Berroberia
 SP 15 Bora Gran (d'en Carreras),
 La Bora Gran
 SP 16 Brechas de la Cantera de
 l'Altissen, Castelldefels
 SP 17 Bujero del Silo
 SP 18 Cala Blanes, Cala En Blanes
 SP 19 Almenara I, Casablanca I
 SP 20 Cingle Vermell
 SP 21 Cova Negra de Bellus
 SP 22 Cova Nova
 SP 23 Cova de Llenaire
 SP 24 Cova de Son Maiol/Mayol
 SP 25 Cova de davall des Mirador
 de sa Costa des Pins
 SP 26 Cova de s'Ermita, Coves
 d'Arta
 SP 27 Cova den Jaume Orat
 SP 28 Cova des Cendres
 SP 29 Cova des Moro
 SP 30 Cueto de la Mina
 SP 31 Cueva Horá
 SP 32 Cueva Juan Berchmans
 SP 33 Cueva Volcán, Volcán
 (de Faro)
 SP 34 Cueva de Ambrosio
 SP 35 Cueva de Arenaza
 SP 36 Cueva de Campana de Piñar
 SP 37 Cueva de Ermitia
 SP 38 Cueva de Hornos de la Peña
 SP 39 Cueva de Laminak II
 SP 40 Cueva de Lumentxa
 SP 41 Cueva de Nerja
 SP 42 Cueva de Santimamiñe
 SP 43 Cueva de Torre
 SP 44 Cueva de Valdegoba
 SP 45 Boquete de Zaffaraya, Cueva
 de Zafarraya
 SP 46 Cueva de el Parco
 SP 47 Cueva de las Tuxuneras
 SP 48 Cueva Caballon, Cueva del
 Caballon
 SP 49 Cueva del Conde, El Conde
 SP 50 Cueva del Toll
 SP 51 Cueva la Blanca
 SP 52 Cuevaona, La Cuevaona
 SP 53 Devil's Tower, Forbes Quarry
 SP 54 Ekain
 SP 55 Castillo, Cueva del Castillo,
 El Castillo
 SP 56 El Padul
 SP 57 El Pendo, Pendo
 SP 58 El Salt
 SP 59 Erralla Cave
 SP 60 Bufador de Son Berenguer,
 Cova des Bufador, Es Bufador de
 Son Berenguer
 SP 61 Es Pouàs
 SP 62 Genista Cave 4A
 SP 63 Avenc de Génova
 SP 64 Gorham's Cave
 SP 65 Gruta de Serinya
 SP 66 Huéscar-1
 SP 67 Fuerteventura, Jandia
 Peninsula
 SP 68 La Riera
 SP 69 Las Yedras
 SP 70 Lezetxiki
 SP 71 Mallaetes
 SP 72 Mollet I
 SP 73 Parpalló
 SP 74 Pedrera de S'Onix
 SP 75 Pinilla del Valle
 SP 76 Reclau Viver
 SP 77 Roc de la Melca
 SP 78 Sant-Gregori
 SP 79 Sevels Cave
 SP 80 Cova de Son Baucà, Son
 Baucà/Bauzà
 SP 81 S'Espasa
 SP 82 Torralba
 SP 83 Urtiaga
 SP 84 Barranc de Binigaus
 SP 85 Cova de Ca Na Reia

- SP 86 Cova de Canet
 SP 87 Devant Pau
 SP 88 Hueso del Caballo
 SP 89 Islas Medas, Meda Grande
 SP 90 Jarama VI
 SP 91 Tossal de la Roca
 SP 92 Old Castile, Vielle Cast,
 Vieille Castille
 SR 1 Smolucka Pecina
 SR 2 Visoka pecina
 SV 1 Fru Alstad
 SV 2 Gullbergsvass, Göteborg
 SV 3 Hermanstorp
 SV 4 Landeryd
 SV 5 Samneröd
 SV 6 Segebro
 SV 7 Slangemölla
 SV 8 Toppeladugård
 SY 1 Douara Cave
 SY 2 Tell Mureybet
 TK 1 Emirkaya-2
 TU 1 Hamada Damous
 UK 1 Aldeby
 UK 2 Aveline's Hole
 UK 3 Bacon Hole
 UK 4 Bacton
 UK 5 Bielbacks
 UK 6 Bridged Pot Shelter
 UK 7 Brixham Cave, Windmill
 Hill Cave
 UK 8 Carnforth Cave, Dog Holes,
 Warton Crag
 UK 9 Cathole
 UK 10 Chelm's Combe Shelter
 UK 11 Chillesford
 UK 12 Chudleigh Cave
 UK 13 Church Hole Cave
 UK 14 Clevedon Cave, Walton Cave
 UK 15 Cotte de Saint Brelade
 UK 16 Crayford
 UK 17 Alt nan Uamh, Creag nan
 Uamh Cave
 UK 18 Creswell Caves
 UK 19 Dalling
 UK 20 Derbyshire Peak Caves
 UK 21 Dog Hole Fissure
 UK 22 Dowel Cave
 UK 23 East Runton
 UK 24 Elder Bush Cave
 UK 25 Fisherton
 UK 26 Fox Hole Cave
 UK 27 Gop Cave
 UK 28 Gough's Cave, Gough's
 New Cave
 UK 29 Gough's Old Cave
 UK 30 Grays Thurrock, Grays
 UK 31 Happaway Cave
 UK 32 Hoe Grange Cave,
 Longcliffe Cave
 UK 33 Ightham fissure
 UK 34 Ilford
 UK 35 Kents Cave
 UK 36 Kent's Cavern/Hole
 UK 37 King Arthur's Cave
 UK 38 Kirkdale Cave
 UK 39 Langwich Cave, Langwith
 Basset Cave
 UK 40 Lawford
 UK 41 Lea Valley
 UK 42 Hoyle, Little Hoyle
 UK 43 Merlin's Cave, Wye
 River/Valley Cave
 UK 44 Minchin Hole
 UK 45 Mundesley
 UK 46 Neale's Cave
 UK 47 Ossiferous Fissure C8
 UK 48 Ossom's/Ossum's Cave
 UK 49 Ostend
 UK 50 Overstrand
 UK 51 Goat's Cave, Paviland
 UK 52 Pin Hole Cave
 UK 53 Potter's Cave
 UK 54 Ravencliffe Cave
 UK 55 Robin Hood's Cave
 UK 56 Seaton
 UK 57 Soldier's Hole
 UK 58 Stratheden
 UK 59 Sun Hole
 UK 60 Barnsfield Pit,
 Swanscombe

- UK 61 Dierdens Pit, Ingress vale,
Swanscombe
- UK 62 Thatcham
- UK 63 Torbryan Caves
(collectively)
- UK 64 Tornewton Cave
- UK 65 Uphall
- UK 66 Walthamstow
- UK 67 Waterhall farm
- UK 68 West Runton
- UK 69 Westbury-sub-Mendip
- UK 71 Yarm Hill
- UK 72 Hoxne
- UK 73 Wetton Mill Rockshelter
- UK 74 Broken Cavern
- UR 1 Adzhi-Koba
- UR 2 Alimov(skii) Naves
- UR 4 Chokurcha
- UR 5 Dobranichevka
- UR 6 Fatma-Koba
- UR 7 Gontsy
- UR 8 Kara-Koba
- UR 9 Kiik-Koba
- UR 10 Korman IV
- UR 11 Kosh-Koba
- UR 12 Kisil-Koba, Krasnoi
peshcher, Kyzyl-Koba
- UR 13 Mezhirich
- UR 14 Mezin, Miseni
- UR 15 Krivchanski peshcher,
Krivche, Nishnekrivchansk,
Nizhnee Krivche
- UR 17 Novgorod-Severskii/Siversk
- UR 18 Malaya Ugolka, Malougolsk,
Perlinka
- UR 19 Prolom 2
- UR 20 Shaitan-Koba
- UR 21 Chertkov, Chortkov,
Sinyakovo I
- UR 22 Staroselye
- UR 23 Starunia
- UR 24 Syuren 1
- UR 25 Syuren 2
- UR 26 Arabka, Tikhonovka
- UR 27 Tsan'-Koba
- UR 28 Zaskalnaya V
- UR 29 Zaskalnaya VI
- UR 30 Zmeinogo Naves
- UR 31 Cherevichnyj, Cherevichnoe
- UR 32 Kanry
- UR 33 Kujal'nitzkogo limana,
Zhevakhova gora
- UR 34 Murzak koba
- UR 35 Tarchankut
- UR 36 Kryzhanovka
- UZ 1 Teshik-Tash

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